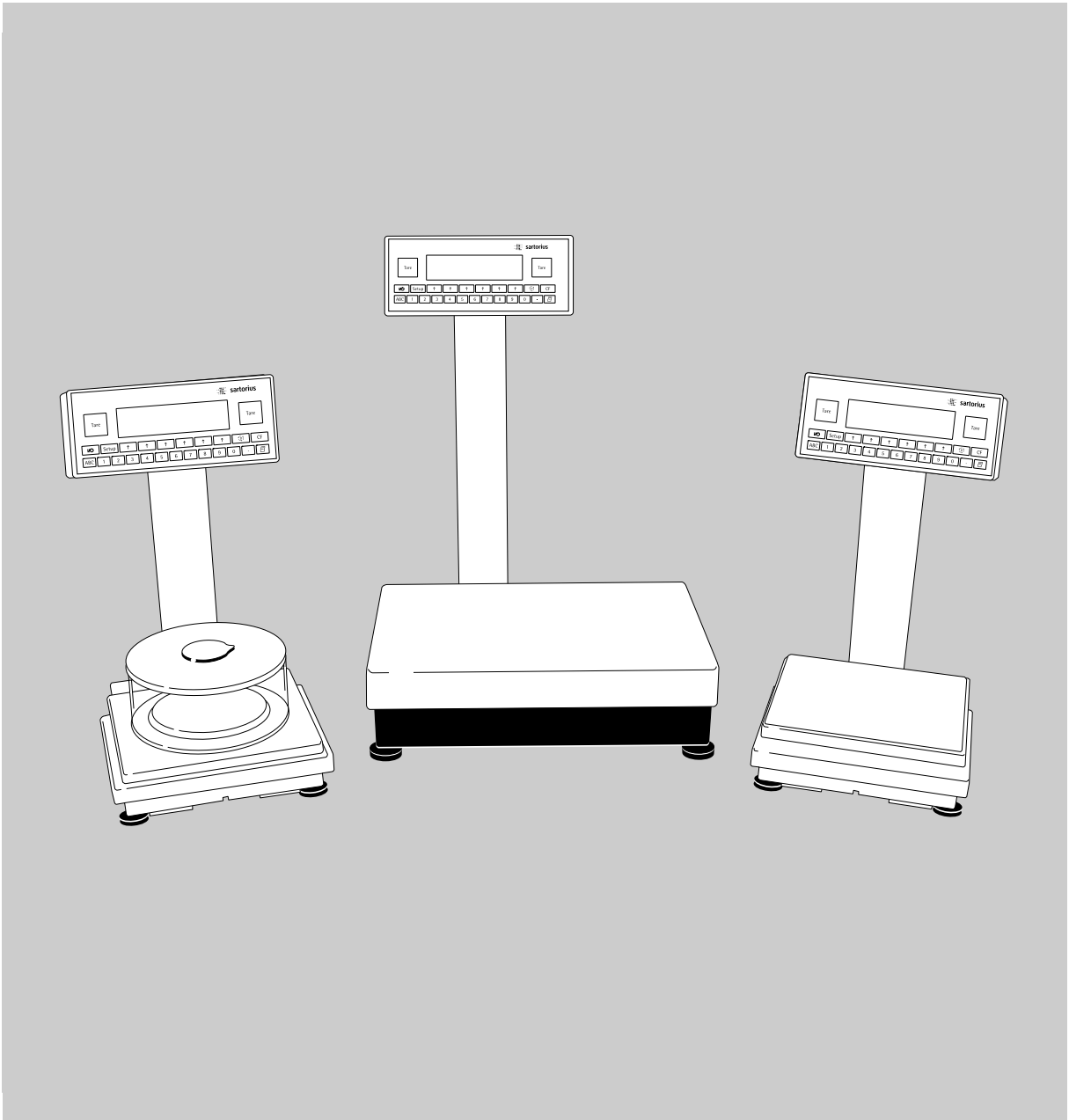
sartorius

Operating Instructions

Sartorius Factory Series

FC and FCG Models
Electronic Precision Scales



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Intended Use

The Factory Series from Sartorius offers precision scales for measuring mass (weight). The scales in this series have capacities ranging from 1mg to 64 kg.

A broad range of special performance features make the Factory scales ideal for use as inspection, measuring and test equipment in quality management systems.

These features include:
- Self-calibrating and adjustment function, isoTEST
- reproTEST for quick determination of the standard deviation to check the reproducibility of results
- ISO/GMP-compliant recording capability for printouts
- Password-protected menu lock

Factory scales meet the highest requirements on the accuracy and reliability of weighing results through the following features:
- Efficient filtering-out of interference from ambient conditions, e.g. vibrations, drafts, etc.
- Stable and reproducible results
- Excellent readability under any lighting conditions
- Rugged, durable weighing system

Factory scales save work and speed up simple routine applications through:
- Ultrafast response times
- Built-in application programs, including

Application 1:
- Toggling between two weight units
- Counting
- Weighing in percent
- Animal weighing
- Recalculation
- Calculation

Application 2:
- Checkweighing
- Time-controlled functions

Application 3:
- Totalizing
- Formulation
- Statistics

with the following additional functions:
- Second tare memory
- Identifier
- Product data memory
- Manual data storage in Application 3

- Automatic initialization when you switch on the scale
- Easy input of alphanumeric sample, lot and scale IDs
- Flexible, easy-to-use display and control unit
- Connectivity for control through an on-line computer

Hotline
For advice on the use of these applications, just call or fax
Your local Sartorius office for the address, please visit our Internet website www.sartorius.com.

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Entering the General Password

Warning and Safety Information

This scale has been constructed in accordance with the European Directives as well as international regulations and standards for operation of electrical equipment, electromagnetic compatibility, and stipulated safety requirements. Improper use or handling, however, can result in damage and/or injury.

Read these operating instructions thoroughly before using your scale to prevent damage to the equipment. Keep these instructions in a safe place.

Follow the instructions below to ensure safe and trouble-free operation of your scale:

⚠ Do not use this scale in a hazardous area/location

⚠ Make sure that the voltage rating printed on the AC adapter is identical to your local line voltage

- The only way to switch the power off completely is to disconnect the AC adapter
- The scale housing is protected as listed below against dust deposits and water splashes – the housing is not completely dust-tight, however.
  - IP 44 for FCG64EDE-H
  - IP 65 for all other FC...EDE models
  - IP 54 for models with a weighing capacity ≤12 kg
- Protect the AC adapter from contact with liquid.
- Connect only Sartorius accessories and options, as these are optimally designed for use with your Factory scale.

Do not open the scale housing. If the seal is broken, this will result in forfeiture of all claims under the manufacturer's warranty.

In case you have any problems with your scale:

○ contact your local Sartorius office, dealer or service center

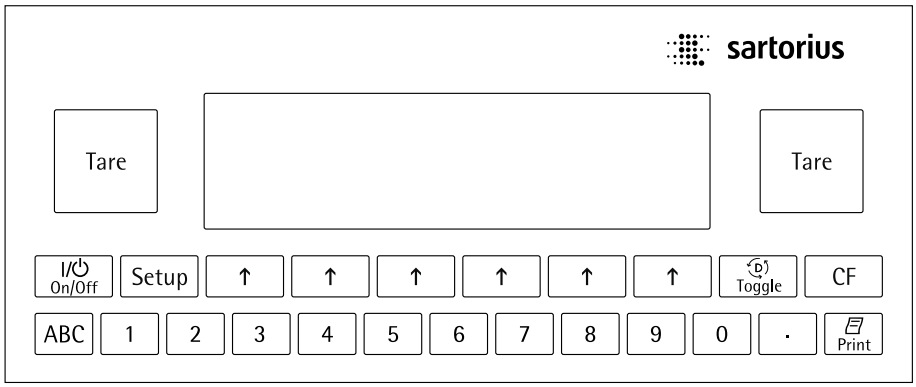
Operating Design

The scales in the Factory Series consist of a weighing cell and a display and control unit. In addition to the choice of power supply (via AC adapter or external rechargeable battery pack), your scale also has an interface port for connecting a printer, computer or universal remote control switch.

The display and control unit and the weighing cell can be set up separately. Operation of Factory scales follows a uniform "philosophy" which is described in this manual. Where not expressly indicated otherwise, the uses described in this manual apply to verified and verifiable scale versions (indicated by the suffix "-0CE" in the model number), as well as the standard version.

Combination of Several Applications
You can combine the use of various application programs to meet your more complicated requirements. To select application programs one after the other, press [Toggle] (toggle function).

Keys
Your Factory scale is operated either by using the keys on the display and control unit or via a connected PC. Operation by means of the scale keys is described in the following.



Meaning

[ABC] Alphabetic keys
Please see section on "Text Input"

[I/⏻] On | off key
Turns the scale on and off or switches it to the standby mode

[Setup] Menu settings
Accesses and exits the Setup menu

[Toggle] Toggles to the next application program

[CF] Clear function
Deletes keypad input
Interrupts a calibration and adjustment routine in progress
Quits application programs

[Print] Print key
Outputs displayed values or data logs to the serial communications and | or printer port

[·] Enters a decimal point

[1] ... [9] [0] keys
See the section on "Numeric Input"

[Tare] Tares the scale

Numeric Input
To enter numbers:
press [1] ... [9] [0] [·]

To store numbers entered: press the corresponding function key directly below the soft key label

To delete an entire numeric input digit by digit: press the [CF] key

Text Input

● To enter numbers:
see the section on “Numeric Input”

● To enter letters or characters:
press the [ABC] key
> Letters are displayed in the bottom line for selection

● To select a different letter: press the corresponding soft key to change the letter shown

● To select the letter | character shown:
press the corresponding function key below the soft key label
> The selected letter is shown on the display

○ Enter the next letter | character, if desired, as described above

○ To exit the letter input mode (e.g., if the last character entered is a letter): press the [ABC] key

● To store a word: press the corresponding function key (soft key), such as `ID`

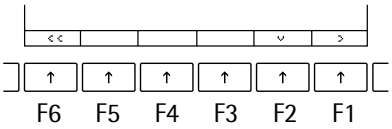
● To delete an input character by character: press the [CF] key

● To delete user data: enter [·] or a space and save

Function Keys (Soft Keys)
The current function of soft keys is indicated in the bottom line of the display (footer).

Texts (abbreviations) or symbols can be displayed.

Texts (Examples)
`Cal`: Start calibration | adjustment
`S ID`: Save ID



The function keys are numbered from right (F1) to left (F6).

Symbols
The bottom line shows the following symbols:
`<<` Back to the initial state (in the Setup menu: exit Setup)

`<` Go to the higher selection level

`>` Show sub-items under the active item

`^` Move upward in the input | output window

`v` Move downward in the input | output window

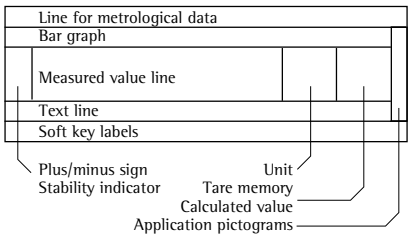
`↵` Set the selected menu parameter

Labeled Keys
These keys always have the function indicated, but are not available at all times. Availability of these functions depends on the current operating status and menu settings.

There are two fundamentally different types of display:
– display for weights and calculated values
– display for menu parameter settings (setup)

Operation

Display for Weights and Calculated Values
This display is subdivided into 9 areas.



Line for Metrological Data:
When the scale is used in legal metrology, the following metrological specifications of the scale are shown here:

`Max` Maximum capacity (upper range limit) of the scale

`Min` Minimum capacity (lower range limit) of the scale

`R1` to `R4` Display when e = d

`e` Verification scale interval

`d` Readability | scale interval

On standard scale, only `Max` and `d` are displayed.

Bar Graph:
The bar graph indicates how much of the scale's capacity is "used up" by the current load; during checkweighing, it indicates the control limits.

The following symbols may be displayed:

0% Lower load limit

100% Upper load limit

Bar graph showing 10% intervals

– Minimum for checkweighing

= Target for checkweighing

+ Maximum for checkweighing

Plus/Minus Sign, Stability Symbol:
A plus or minus sign (+ or –) is shown here for a weight (or a calculated value, such as that for counting), or the o symbol indicating that a verified scale has been zeroed or tared.

Line for Measured Values:
This area shows the weighed or calculated value and the alphanumeric input.

Note Concerning Verified Scales Approved for Use as Legal Measuring Instruments in the EU*:
For verified scales that have a verification scale interval e which is greater than the scale interval d, the last digit on the display is bordered.

Unit and Stability:
When the scale reaches stability, the weight unit or calculated unit is displayed here.

When the ⚠ symbol is displayed here, the value indicated in the readout cannot be used in legal metrology.

Tare Memory, Calculated Values:
The symbols displayed here indicate when there is a value in one of the tare memories or when the value shown is a result of calculation rather than direct measurement.

These symbols are as follows:

⚠ Calculated value

NET1 Net value | tare memory

NET2 used by an application program (e.g., formulation, second tare memory)

Application Pictograms:
The pictograms displayed here indicate the application(s) selected. The pictogram is displayed inversely (white on a black background) when the corresponding application is active.

For example, the following symbols may be displayed simultaneously:

The counting application is active

Checkweighing is also active

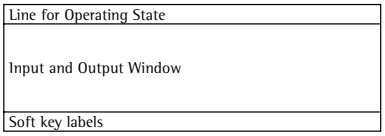
Print

Data record

Text Line:
Additional information is displayed here (e.g., operator guidance prompts, name of the active program, etc.)

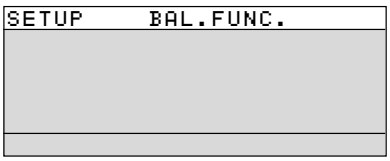
Soft Key Labels:
The current functions of the soft keys above the function keys (arrow keys) are indicated here; during calibration | adjustment, this line shows up- and down-arrows (^ and v) for selecting calibration and adjustment functions.

Display for Menu Parameter Settings (Setup)
This display is divided into three sections.



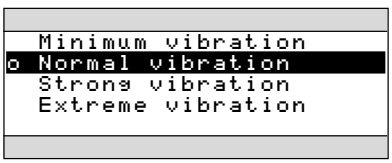
Status Line:
The status line of shows the function of the display screen page. In the Setup menu, the current menu "path" is shown here.

Setup Menu Example: "Balance/scale functions":



Input and Output Window
This window contains either detailed information (e.g., on the active application) or a pick list. A selected item is displayed inversely (white characters on a black background). You can also enter information in an active field in this window using the alphabetic and numeric keys.

Setup Menu Example,
"Device parameters, Adapt filter":



The following symbol may be displayed in the input and output window:

o this symbol marks the saved menu setting

Soft Key Labels
See the description "Function Keys (Soft Keys)" on the previous page

* including the Signatories of the Agreement on the European Economic Area

To set a parameter:

- Press the ∧ or ∨ soft key repeatedly until the desired setting is selected (displayed inversely)

- Confirm your selection: press the ↵ soft key

To change the numeric value of a parameter:

- Press the ∧ or ∨ soft key repeatedly, if necessary, until the desired setting is selected (displayed inversely)

- Enter a new value or character: use the 0 1 ... 9 · keys or the ABC key and enter the desired letters

- Confirm your selection: press the ↵ soft key

To exit Setup: press the ‹‹ soft key

Input

Bar Code Scanner or Keyboard Input
You can use a bar code scanner or an external keyboard to input alphanumeric values. These inputs are processed in the same manner as keypad inputs on the display and control unit of the scale. Bar code and keyboard inputs are only displayed; they cannot activate any function.

To assign a bar code scanner or keyboard input to a function, press one of the following soft keys:

- Lot
- Samples
- Measured values
- Sample number
- Tare value
- Initial weight
- Backweighed value
- Sample ID

Foot or Hand Switch Input
You can connect a foot switch or a hand switch to the scale to have this device perform a keypad function (such as CF or Tare).

PC Input
You can use a computer to control the functions of the weighing cell and display and control unit via the communications port (see the "Data Output Function" section in the chapter entitled "Operation").

Data Output

Your Factory scale is equipped with an interface port for connecting your choice of the following:

- Printer

- Peripheral device (e.g., computer)

- Universal remote control switch

Printer
You can configure the print functions to meet your individual requirements by selecting the corresponding menu code.

You can have printouts generated automatically, or by pressing (🖹); dependent on or independent of the stability or time parameters; with or without IDs; and as standard or ISO/GMP-compliant printouts.

ISO: International Organization for Standardization

GMP: Good Manufacturing Practice

See the section on "Data Output Functions" in the chapter entitled "Operation" for a detailed description of data output options.

Interface Port
Instead of a printer, you may choose to connect a different peripheral device, e.g. a computer (PC). With an on-line PC you can control both the weighing cell and the display unit of the Factory scale.

Request messages are sent via the interface to initiate functions in the weighing cell and in the display unit. Some of the functions generate response messages.

See the chapter entitled "Operation" under the section on "Data Output" for a detailed description of the interface port.

Error Codes
If you press a key that has no function, or which is blocked at a certain point in an application program, this error is indicated as follows:

- a double-beep is sounded as an acoustic signal if the key has no function

- a double-beep is sounded and a message is displayed for 2 seconds in the text line if the key function is not available at that time

The response to an operator error is identical in all models of the Factory series. See the chapter entitled "Error Codes" for a detailed description.

Storing Settings

Storing Parameter Settings
The settings configured are stored in the scale's non-volatile memory. The most recent parameter settings are active when you switch on the scale.

Saving Parameter Settings
You can assign passwords in order to block access to:

- Weighing parameters

- Device parameters

- Application parameters

- Factory settings

Getting Started

Storage and Shipping Conditions

- Do not expose the scale to extreme temperatures, jolts, impacts, vibration or moisture.

Unpacking the Scale

● After unpacking the scale, check it immediately for any visible damage as a result of rough handling during shipment.

○ If any damage is visible, proceed as directed in the chapter entitled "Care and Maintenance," under the section on "Safety Inspection."

It is a good idea to save the box and all parts of the packaging until you have successfully installed your scale. Only the original packaging provides the best protection for shipment. Before packing your scale, unplug all connected cables to prevent damage.

Important Note Concerning Verified Scales Approved for Use as Legal Measuring Instruments in the EU*:
Provided that an official seal is required for the verified scale, a control seal is affixed to the scale. This seal will be irreparably damaged if you attempt remove it. If the seal is broken, the validity of the verification will become void and you must have your scale re-verified.

Equipment Supplied
The equipment supplied includes the components listed below:

FC06BBE-S
- Complete scale with data interface port
- AC adapter
- Column for display and control unit
- Retainer
- Dust cover
- Shield ring
- Load plate support
- Load plate
- Glass cylinder/draft shield
- Draft shield cover

FC6CCE-H, FC2CCE-S
- Complete scale with data interface port
- AC adapter
- Column for display and control unit
- Retainer
- Dust cover
- Load plate shield
- Load plate

FC12CCE-S, FC6CCE-S
- Complete scale with data interface port
- AC adapter
- Column for display and control unit
- Retainer
- Dust cover
- Load plate

FCG34EDE-H, FCG34EDE-P, FCG16EDE-H, FCG12EDE-P, FCG64EDE-S, FCG64EDE-H
- Complete scale with data interface port
- AC adapter
- Column for display and control unit
- Retainer
- Load plate

Installation Instructions
When choosing a location to set up your scale, observe the following so that you will be able to work with added speed and accuracy:
- Avoid placing the scale in close proximity to a heater or otherwise exposing the scale to heat or direct sunlight
- Protect the scale from drafts hat come from open windows or doors
- Do not expose the scale to extreme moisture over long periods
- Avoid exposing the scale to extreme vibrations during weighing
- Set up the scale on a stable, even surface
- Protect the scale from aggressive chemical vapors

Conditioning the Scale
Moisture in the air can condense on the surfaces of a cold scale whenever it is brought into a substantially warmer place. If you transfer the scale to a warmer area, make sure to condition it for about 2 hours at room temperature, leaving it unplugged from AC power.

* including the Signatories of the Agreement on the European Economic Area

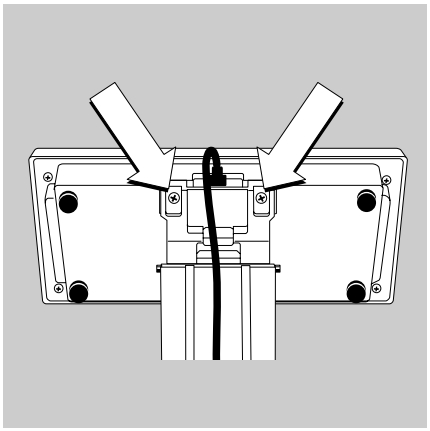
Mounting the Display and Control Unit

You can mount the display and control unit in one of 3 ways:

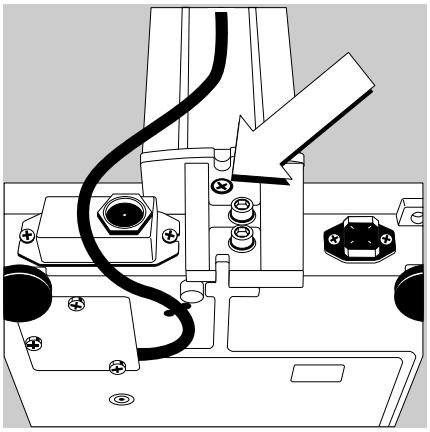
- on the column, which is then fastened to the back of the scale
- on the retainer, which is then fastened to the front of the scale
- on the retainer separately from the scale

FC06BBE-S, FC6CCE-H, FC2CCE-S, FC12CCE-S, FC6CCE-S

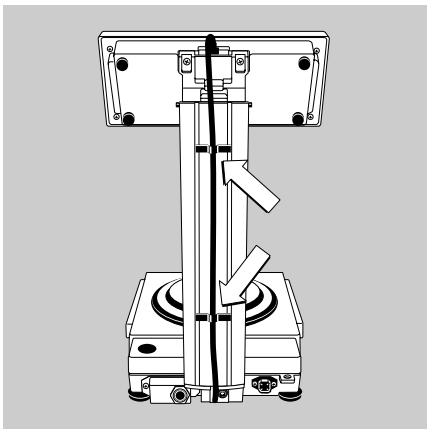
Mounting the Control Unit and Column



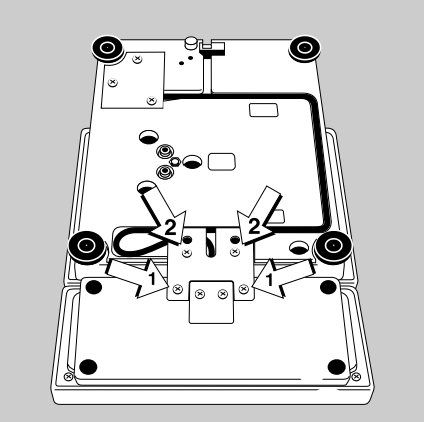
- Fasten the display unit to the retainer using the two Phillips head screws supplied



- Fasten the column to the scale using the screws supplied



- Press the cable into the two clamps on the back of the column and then press it into the channel (raceway) on the bottom of the scale



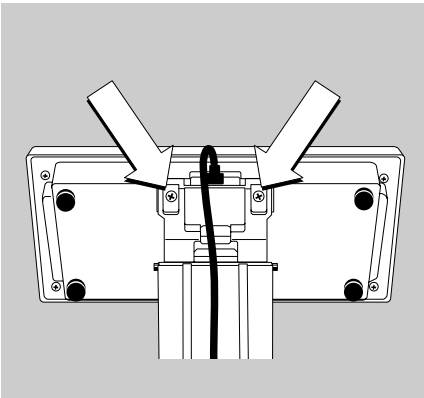
Fastening the Display and Control Unit to the Front of the Weighing Platform or Mounting It Separately

- Turn the scale over and place it on a cushioned surface to prevent damage to the weighing system
- Fasten the retainer to the display and control unit using the two Phillips head screws 1 (M4x12)
- Fastening the display and control unit to the weighing platform: Fasten the retainer with the two Phillips head screws 2 (M4×12) to the weighing platform
- Press the cable into the raceway (channel) as shown in the diagram on the left

> Cable length: 55 cm (21.7 inches)

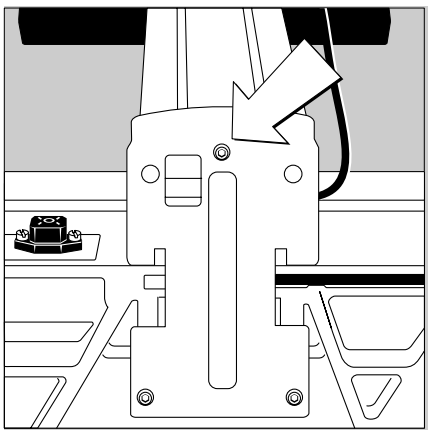
○ To order a longer cable, see the section entitled “Accessories”

FCG34EDE-H, FCG34EDE-P, FCG16EDE-S, FCG12EDE-P, FCG64EDE-S, FCG64EDE-H

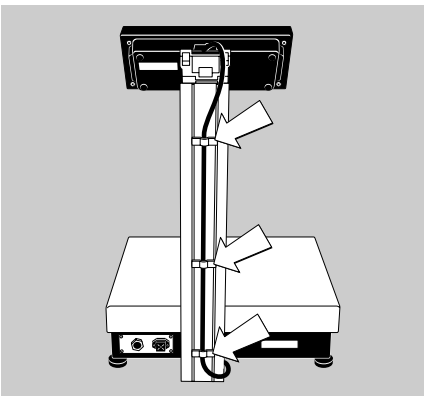


Installing the Display and Control Unit on the Column

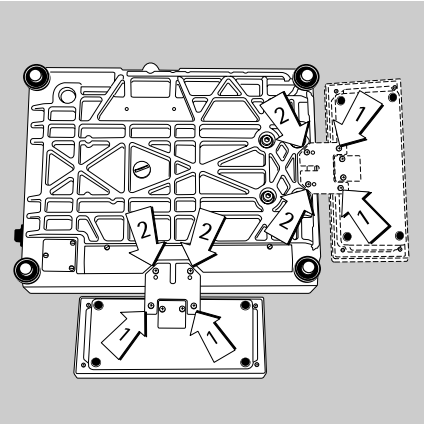
- Use the two Phillips head screws (M 4×8) supplied to fasten the display and control unit to the column



- Attach the column to the scale using the screw (M 4×20)

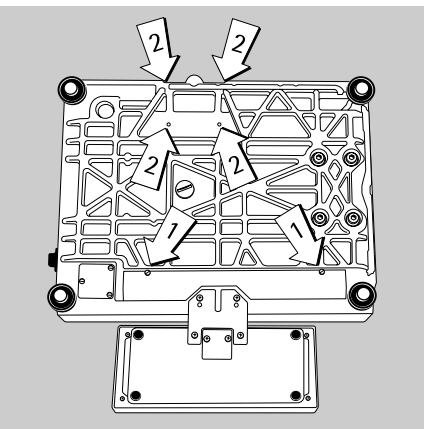


- Fasten the connecting cable to the column using the three clips



Fastening the Display and Control Unit to the Front of the Weighing Platform

- Turn the scale over and place it on a cushioned surface to prevent damage to the weighing system
- Remove the column retainer from the scale
- Fasten the display and control unit retainer to the display and control unit using the 2 Phillips head screws supplied (1) (M4×8)
- Fastening the retainer to the scale: Fasten the retainer to the scale using the Phillips head screws supplied (2) (M4×8)



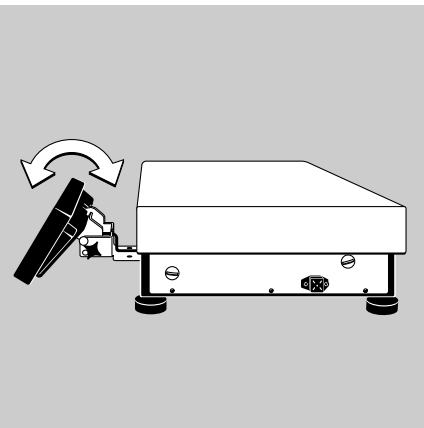
- Press the cable into the raceway (channel)
- Replace the cover on the cable raceway (1)
- Close the 4 bore holes using the caps supplied (2)

Remote Operation of the Display and Control Unit

- Turn the scale over and place it on a cushioned surface to prevent damage to the weighing system
- Remove the column retainer from the scale
- Close the 4 bore holes using the caps supplied (2)

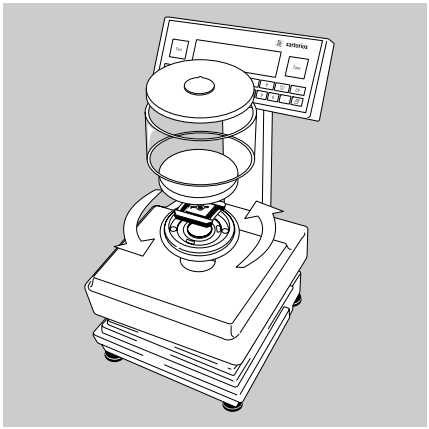
> Cable length: at least 80 cm (approximately 31 inches)

- To order a longer cable, see the section entitled “Accessories”



Adjusting the Angle of the Display and Control Unit (only with Accessory YDH01F)

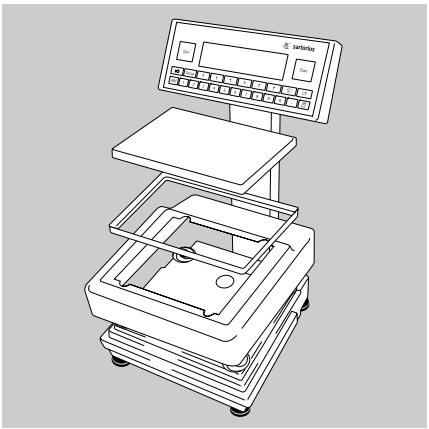
- Tilt the display and control unit to the desired position and tighten the knurled thumb screw to hold it in place.



Installing the Components

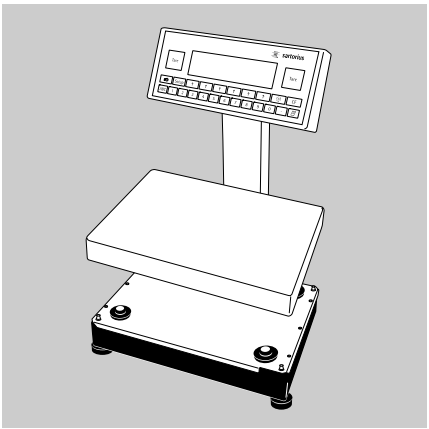
FC06BBE-S

- Place the following components on the scale in the order given below:
- Dust cover
- Place the shield ring on the scale and turn it counterclockwise until it is securely positioned in place
- Load plate support
- Load plate
- Glass cylinder
- Draft shield cover



FC6CCE-H, FC2CCE-S, FC12CCE-S, FC6CCE-S

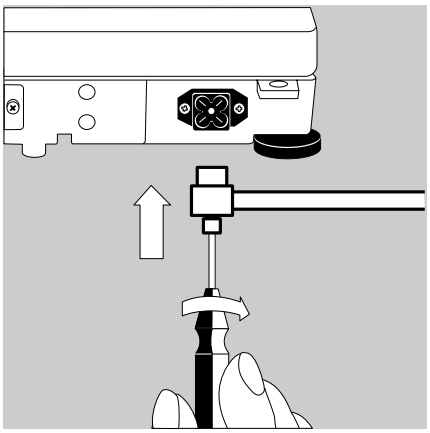
- Place the following components on the scale in the order given below:
- Dust cover (remove backing from the adhesive surface)
- Load plate shield (depends on the type of model)
- Load plate



FCG34EDE-H, FCG34EDE-P, FCG16EDE-S, FCG12EDE-P, FCG64EDE-S, FCG64EDE-H

- Position the load plate

Connecting the Scale to AC Power

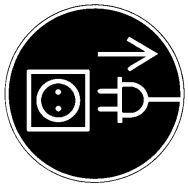


● Check the voltage rating and the plug design
– If they do not match, contact your Sartorius office or dealer

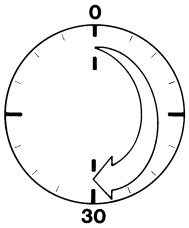
Use only:
– Original Sartorius AC adapters
– Power supplies approved by a certified or authorized technician
○ To use a main feeder cable from the ceiling or a CEE plug, have this equipment installed or mounted by an authorized technician in your facilities
○ To use an external rechargeable battery pack, see “Accessories” in the “Overview” section
● Insert the right-angle plug into the jack and use a screwdriver to tighten the slotted-head screw
● To energize the scale with AC power:
Plug the AC adapter into a wall outlet (mains)

Information on Radio Frequency Interference
Note:
This equipment has been tested and found to comply with the limits pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with these instructions, may cause harmful interference to radio communications.
For information on the specific limits and class of this equipment, please refer to the Declaration of Conformity. Depending on the particular class, you are either required or requested to correct the interference.
If you have a Class A digital device, you need to comply with the FCC statement as follows: “Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.”
If you have a Class B digital device, please read and follow the FCC information given below:
However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
– Increase the separation between the equipment and receiver.
– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
– Consult the dealer or an experienced radio/TV technician for help.
Before you operate this equipment, check which FCC class (Class A or Class B) it has according to the Declaration of Conformity included. Be sure to observe the information of this Declaration.

Safety Precautions
The AC adapter rated to Class 2 can be plugged into any wall outlet without requiring any additional safety precautions. The ground or earth terminal is connected to the scale housing, which can be additionally grounded, if required. The data interface is also electrically connected to the scale housing (ground).



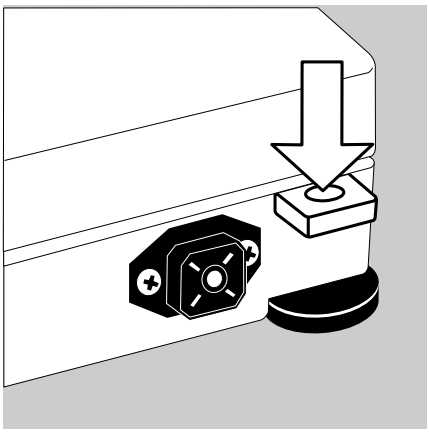
Connecting Electronic Peripheral Devices
● Make absolutely sure to unplug the scale from AC power before you connect or disconnect a peripheral device (printer or PC) to or from the interface port



Warmup Time
To deliver exact results, the scale must warm up for at least 30 minutes after initial connection to AC power or after a relatively long power outage. Only after this time will the scale have reached the required operating temperature.

Using Verified Scales as Legal Measuring Instruments in the EU*:
○ Make sure to allow the scale to warm up for at least 24 hours after initial connection to AC power or after a relatively long power outage

* including the Signatories of the Agreement on the European Economic Area



Fastening an Antitheft Locking Device

○ Models FC06BBE-S, FC6CCE-H, FC2CCE-S, FC12CCE-S, and FC6CCE-S only.

To fasten an antitheft locking device, use the lug located on the rear panel of the scale.

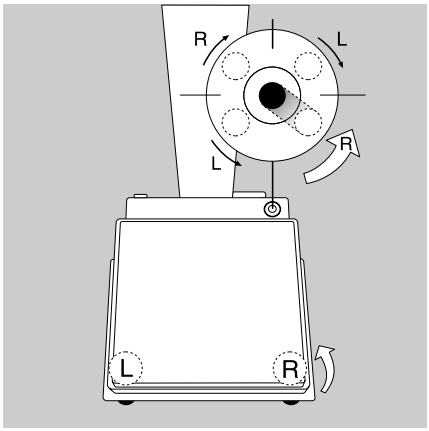
● Secure the scale at the place of installation, e.g., with a chain or a lock.

Leveling the Scale

Purpose:

- To compensate for unevenness at the place of installation
- To achieve perfectly horizontal positioning of the scale for consistent reproducibility of results

Always level the scale again any time it is moved.



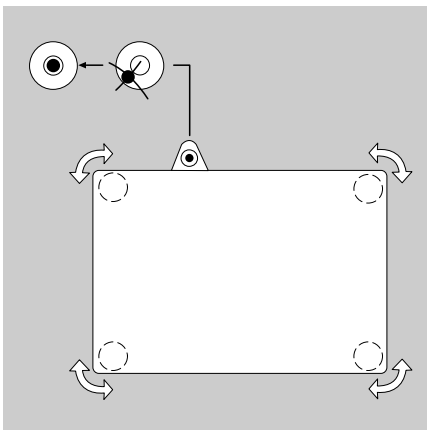
Leveling Scales FC06BBE-S, FC6CCE-H, FC2CCE-S, FC12CCE-S, and FC6CCE-S

Only the 2 front feet are used for leveling.

● Turn the 2 front feet as shown in the illustration until the air bubble is centered within the circle of the level indicator

> Several leveling steps are usually required.

● Extend the two rear feet until they touch the surface on which the scale rests



Leveling Scales FCG34EDE-H, FCG34EDE-P, FCG16EDE-S, FCG12EDE-P, FCG64EDE-S, FCG64EDE-H

● Adjust the four leveling feet until the air bubble is centered within the circle of the level indicator

Setting the Language

> See the “Setting the Language” section in the chapter entitled “Configuration”

Setting the Date and Time

> See the “Entering User Data” section in the chapter entitled “Configuration”

Configuration

Purpose
You can configure the scale to meet individual requirements by entering user data and setting parameters in the Setup program.

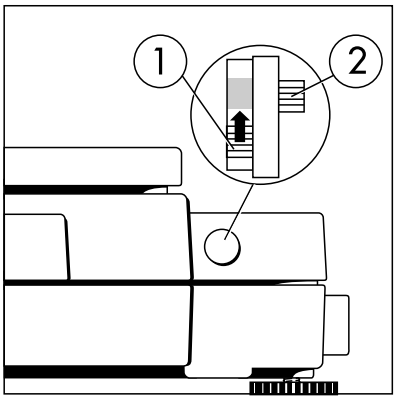
The Setup menu contains the following submenus:
- Scale functions
- Device parameters
- Application parameters
- Printout functions
- Device information
- Language
- Factory settings

Setting the Language
You can choose from 5 languages for the information display:
- German
- English (factory setting)
- English with U.S. date | time format
- French
- Italian
- Spanish

Configuring the Scale for Use in Legal Metrology
Set the menu access switch as described below to configure the following functions for use of the scale in legal metrology:

- Display: Verification scale interval: `e`; lower limit of the weighing capacity: `Min`
- External calibration blocked
- Block MP8 interface emulation

Preparation:
- Remove the cap from the back of the scale housing
- Move the switch (1) upwards



> When the switch is in the upper position, the Setup menu is locked and the scale can be used in legal metrology

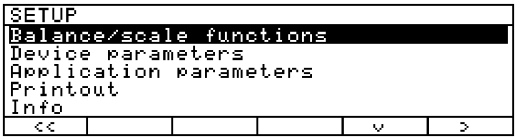
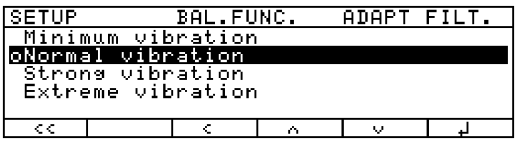
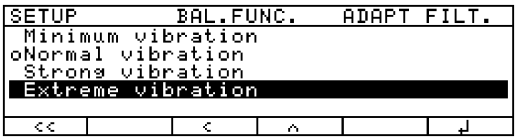
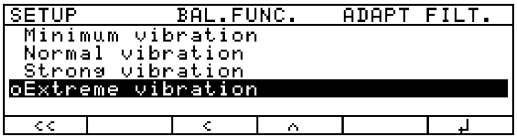
When the switch is in the lower position, the menu is accessible

> Note:
Do not move Switch 2

Example: Setting the Language to "U.S. Mode"

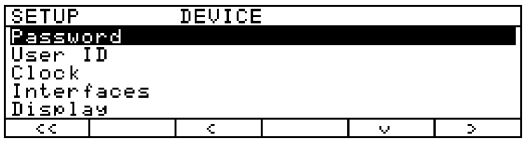
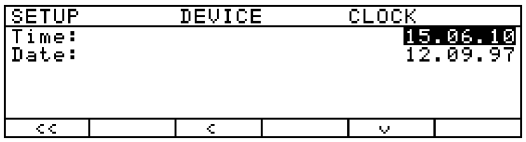
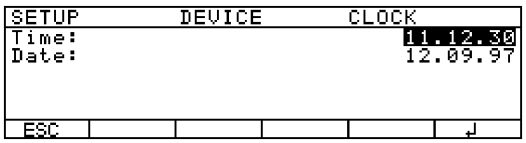
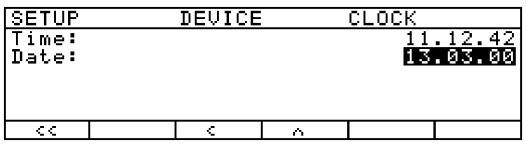
Step	Press key (or follow instructions)	Display/Output
1. Select "Setup" menu	Setup	SETUP Balance/scale functions Device parameters Application parameters Printout Info << ∨ >
2. Select "Language" and confirm	Repeatedly press ∨ soft key, then > soft key	SETUP LANGUAGE Deutsch oEnglish U.S.-Mode Français Italiano << < ∧ ∨ ↵
3. Select "U.S. mode"	∨ soft key twice	SETUP LANGUAGE Deutsch oEnglish U.S.-Mode Français Italiano << < ∧ ∨ ↵
4. Save language	↵ soft key	SETUP LANGUAGE Deutsch English oU.S.-Mode Français Italiano << < ∧ ∨ ↵
5. Exit the Setup menu	<< soft key	Max 6200g d= 0.01g 0% 100% 0.00 g Cal

Navigating in the Setup Menu (Examples)
Example: Adapting the scale to “Extreme vibration”

Step	Press key(s) (or follow instructions)	Display/Output
1. Select Setup menu	Setup	
2. Confirm “Balance/scale functions”	> soft key	
3. Select menu item “Adapt filter” and confirm	∨, then > soft key	
4. Select menu item “Extreme vibration”	∨ soft key	
5. Confirm menu item “Extreme vibration”	↵ soft key	
6. If required, select further menu items	< ∨ ∧ > soft keys	
7. Save setting and exit Setup Menu	<< soft key	

Configuration

Example: Setting date and time

Step	Press key(s) (or follow instructions)	Display/Output
1. Select Setup menu; select “Device parameters”	(Setup), then ˅ soft key and ˃ soft key	
2. Select “Clock”	press ˅ repeatedly, then press ˃	
3. Enter the time	1 1 · 1 2 · 3 0	
4. Confirm the time entered when it synchronizes with your local clock	↲ soft key	
5. Enter the date	1 3 · 0 3 · 0 0	
6. Store the date	↲ soft key	
7. Enter other data, if desired	˂ ˅ ˄ ˃ soft keys	
8. Exit Setup menu	˂˂ soft key	

Setting the Scale Functions (BAL.FUNC.)

Purpose
This menu item enables you to configure the scale functions, i.e., to meet individual requirements by selecting predefined parameters in the Setup menu. You can block access to the menu by assigning a password.

Features
The scale functions are combined in the following groups (1st menu level):

- Calibration/adjustment
- Adapt filter
- Application filter
- Stability range
- Taring
- Auto zero
- Weight unit 1
- Zero range
- Zero range at power on
- Tare/zero at power on
- Factory settings: only wgh. param. (only the scale functions)

Factory Settings
Parameters: The factory settings are identified by the symbol “o” in the list starting on the next page.

Preparation
Show available scale functions:
● Select Setup menu: press the Setup key
> SETUP is displayed

● Select “Balance/scale functions”: press the > soft key

If you already assigned a password:
> The password prompt is displayed

○ If access is blocked by a password: enter the password using the numeric/ alphabetic keys.

○ If the last character of the password is a letter: conclude input by pressing ABC

● Confirm your password and have the scale functions displayed: Press the ↵ soft key
> Scale functions are displayed:

○ To select the next group: press the v soft key (down arrow)

○ To select the previous item of a group: press the ^ soft key (up arrow)

○ To select the next sub-item within a group: press the > soft key (right arrow)

○ To select the previous group: press the < soft key (left arrow)

○ To confirm: press the ↵ soft key

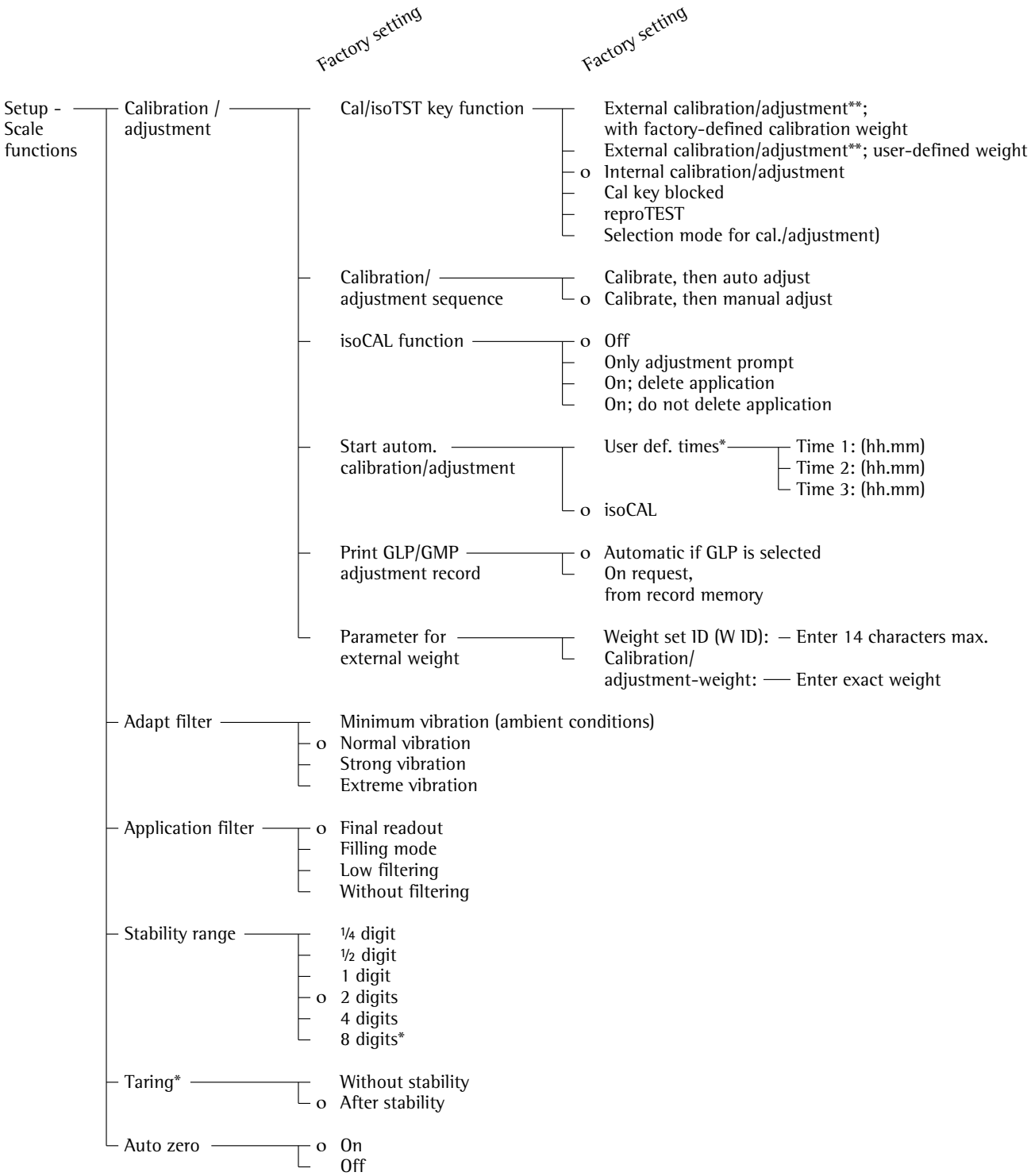
Extra Functions
● Exit the Setup menu: press the << soft key
> Restart your application

● Print parameter settings:
– When the balance/scale functions are displayed, press F
> Printout (example)
Texts with more than 20 characters are cut off

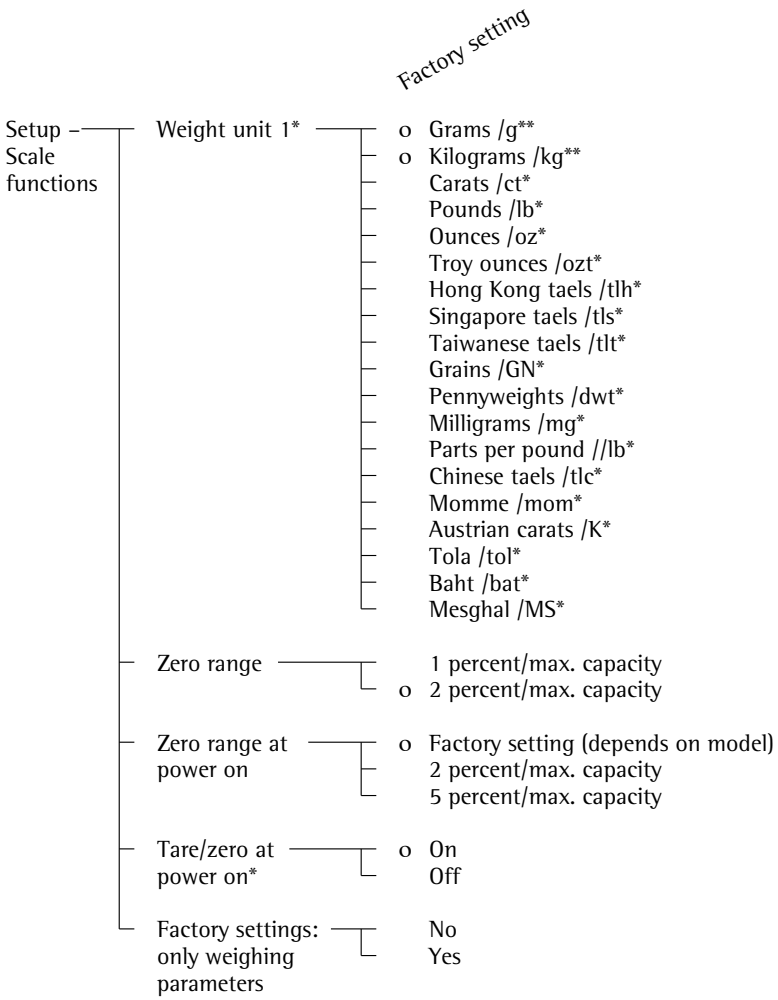
```
SETUP
     BAL.FUNC.
--------------------
Calibration/adjustm
  CAL/iso TST key fun
  Internal cal./adju
  Cal/adjustm seq
Cal. with adjustm au
.
  isoCAL-function
                  Off
  Start autom. adjus
               isoCAL
  Print GLP/GMP adju
Automatic if GLP is
selected
  Parameter for exte
   Wt. ID (W ID):

    Cal./adjust.-wt:
          5000.00 g
 Adapt filter
     Normal vibration
 Application filter
          Filling mode
 Stability range
   2 digits
 Taring
     After stability
Auto zero
                  Off
 Weight unit 1
            Grams /g
```

etc.

Setting the Scale Functions (Overview)



* = not applicable to verified scales used in legal metrology in the European Economic Area
** = verified scales can only be externally calibrated, not adjusted (you can only check the external weight)



* = not applicable to verified scales used in legal metrology in the European Economic Area
** = factory setting depends on weighing range: – ≤ 33 kg: grams
– ≥ 34 kg: kilograms

Setting the Device Parameters (DEVICE)

Purpose
This menu item enables you to configure the scale to meet individual requirements by selecting predefined menu parameters in the Setup menu. You can block access to the menu by assigning a password.

Features
The device parameters are combined in the following groups (1st menu level):

- Password
- User ID
- Clock
- Interfaces
- Display
- Keys
- Extra functions
- Factory settings: only device parameters

Factory Settings
Parameters: The factory settings are identified by the symbol “o” in the list starting on the page after next.

Preparation
Display available device parameters

● Select the Setup menu: press Setup

> SETUP is displayed:

● Select “Device parameters”:
use the v and > soft keys

If no password has been assigned, anyone can access the Setup menu device parameters.

If a password has already been assigned:

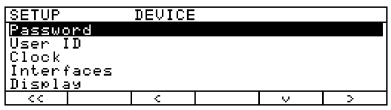
> The password prompt is displayed

○ If access is blocked by a password: enter the password using the numeric and/or alphabetic keys

○ If the last character of the password is a letter: conclude input by pressing the ABC key

● Press ↵ to confirm the password

> Device parameters are now displayed:



○ To select the next group:
press the v soft key (down arrow)

○ To select the previous menu item of a group: press ^ soft key (up arrow)

○ To select the next sub-item within a group: press the > soft key (right arrow)

○ To select the previous group:
press the < soft key (left arrow)

○ Press ↵ soft key to confirm the selected menu item

Entering or Changing a Password

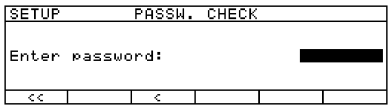
– Let’s assume that a password (with 8 characters max.) has already been assigned to access the Setup device parameters

● Select the Setup menu: press Setup

> SETUP is displayed

● Select parameters:
Use the v and > soft keys

> The password prompt is displayed:



○ Enter the password

○ Press the ↵ soft key to confirm your password and view the device parameters

● Write down your password here for easy reference:
Password =.....

If you assign a password and then forget what the word is:

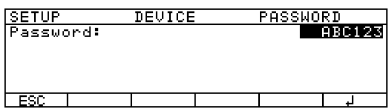
○ Enter the General Password (see Appendix)

○ Press the ↵ soft key to confirm and display the password

> The parameters are displayed

● Select the device parameter “Password”:
If necessary, repeatedly press v or ^ , until you see

> Password: and any existing password



- New password: Enter the numbers and/or letters for the new password (8 characters max.)
  (If “none” is displayed, this means no password has been assigned.) To delete the user password: Press [·] and confirm

- To confirm: press the ↵ soft key

- Exit the Setup menu:
  press the << soft key
> Restart the application

Extra Functions

- Exit the Setup menu:
  press the << soft key
> Restart the application

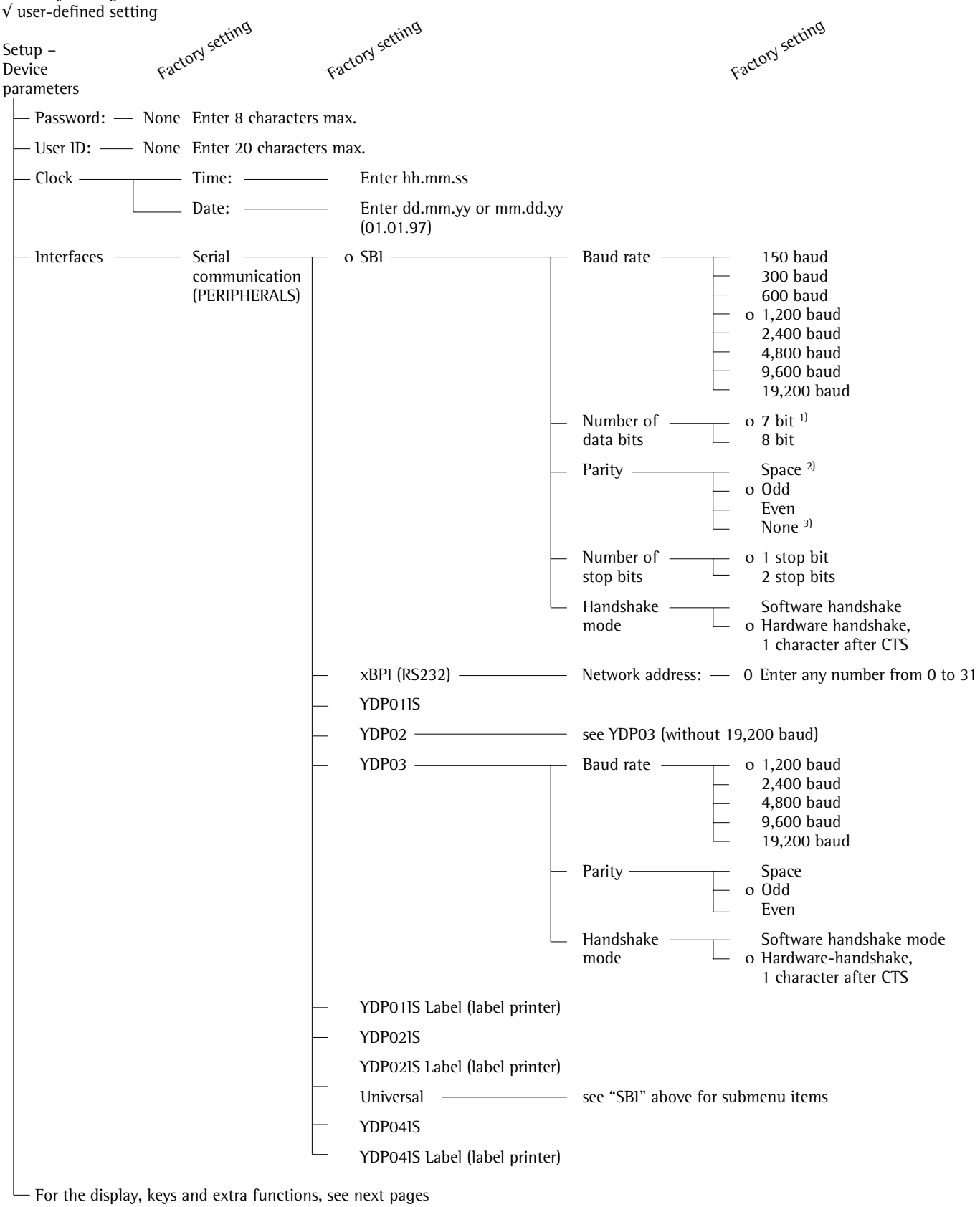
- Print the parameter settings:
– If the device parameters are displayed:
  press [F]
> Printout (example)

```
SETUP
       DEVICE
--------------------
 User ID
  User ID:

 Interfaces
  Serial communicati
   SBI
    Baud rate
           1200 baud
    Number of data b
          7 data bits
    Parity
                 Odd
    Number of stop b
           1 stop bit
    Handshake-mode
  Hardware handshake
  after 1 char
   Function external
         Print key
  Function control
             Output
 Display
  Contrast
                   2
  Background
               White
  Digit size
10mm + bar graph
+text display
  Application symbo
                 On
 Keys
  CF function in ap
Clear all applicati
  CF function for i
Delete last charact
  Block key functio
  All keys unblocke
```

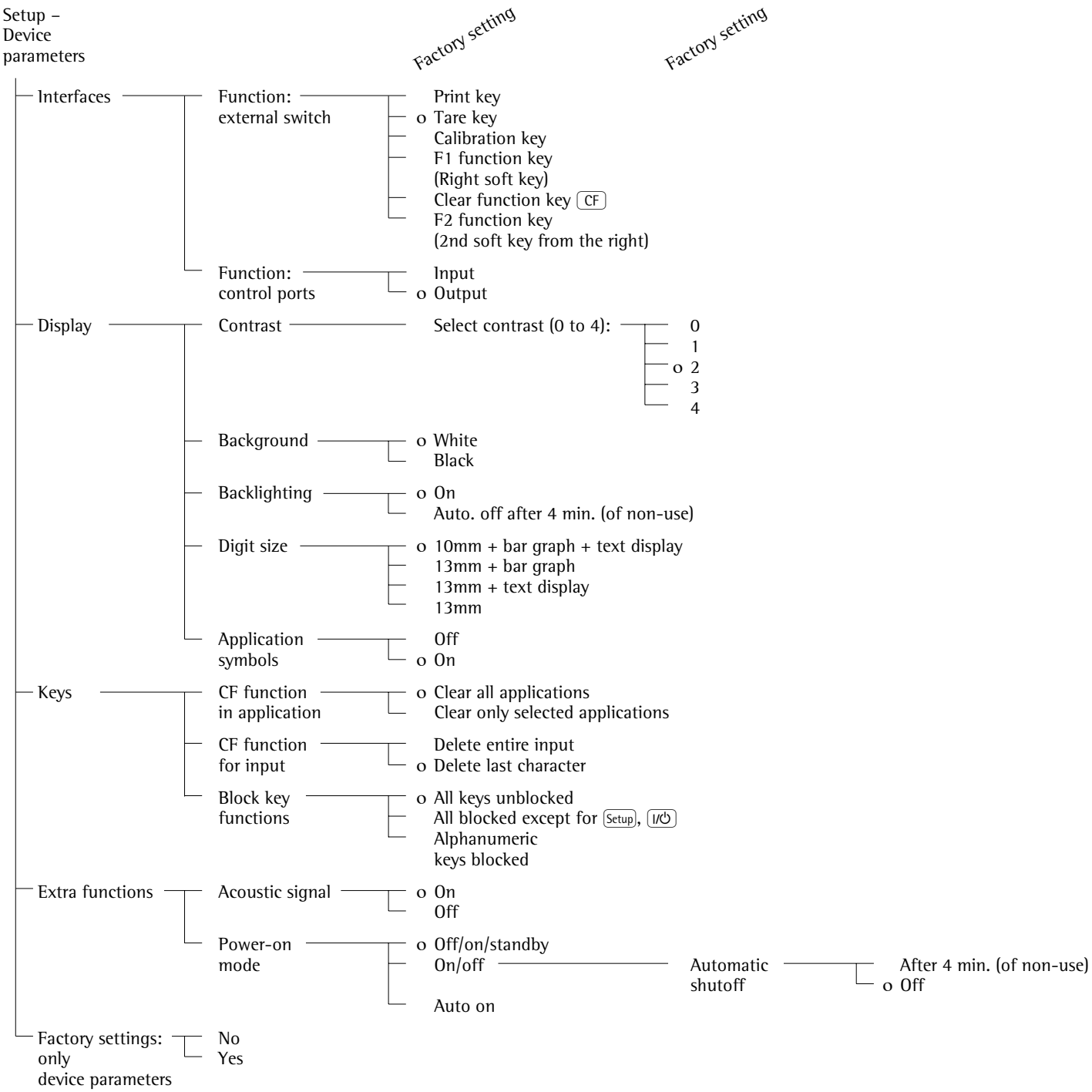
etc.

Setting the Device Parameters (DEVICE)

Device Parameters (Overview)
o factory setting
√ user-defined setting



[1] not if "None" parity is selected
[2] only if 7 data bits selected
[3] only if 8 data bits selected


Setup –
Device
parameters
Factory setting
Factory setting
Interfaces
Function:
external switch
Print key
o Tare key
Calibration key
F1 function key
(Right soft key)
Clear function key CF
F2 function key
(2nd soft key from the right)
Function:
control ports
Input
o Output
Display
Contrast
Select contrast (0 to 4):
0
1
o 2
3
4
Background
o White
Black
Backlighting
o On
Auto. off after 4 min. (of non-use)
Digit size
o 10mm + bar graph + text display
13mm + bar graph
13mm + text display
13mm
Application
symbols
Off
o On
Keys
CF function
in application
o Clear all applications
Clear only selected applications
CF function
for input
Delete entire input
o Delete last character
Block key
functions
o All keys unblocked
All blocked except for Setup, I/⏻
Alphanumeric
keys blocked
Extra functions
Acoustic signal
o On
Off
Power-on
mode
o Off/on/standby
On/off
Automatic
shutoff
After 4 min. (of non-use)
o Off
Auto on
Factory settings:
only
device parameters
No
Yes

Setting the Application Parameters (Application)

Purpose
This menu item enables you to configure the scale, i.e., adapt the scale to your individual requirements by selecting from a list of parameter options in a menu. You can block access to this menu by assigning a password.

Features
The simple weighing function is available at all times. You can select one from each of the following application groups. This means a number of combinations are possible.

Application 1 (basic settings)
- Toggle weight units
- Counting
- Weighing in percent
- Animal weighing (averaging)
- Recalculation
- Calculation
- Density determination
- Differential weighing

Application 2 (control functions)
- Checkweighing
- Time-controlled functions

Application 3 (data records)
- Totalizing
- Formulation
- Statistics

In addition, you can assign 2 extra functions to each of the soft keys, in some cases (depending on the Setup configuration):
- Second tare memory
- Identification codes
- Manual storage M+ key
- Product data memory

Auto-start application the scale is switched on

Factory settings:
only application parameters

Factory Settings
The factory settings are identified by the symbol “o” in the list starting on the next page.

Preparation
Display available application parameters:

● Select the Setup menu:
press the Setup key
> SETUP is displayed

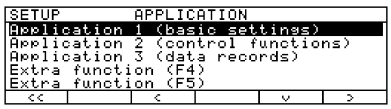
● Select parameters: repeatedly press the v and > soft keys

If you have already assigned a password:
> The password prompt is displayed:

○ If access is blocked by a password:
enter the password using the numeric/ alphabetic keys

○ If the last character of the password is a letter: conclude input by pressing ABC

● Confirm your password and have the application parameters displayed:
press the ↵ soft key
> The application menu is displayed:



○ To select the next group:
press the v soft key (down arrow)

○ To select the previous item of a group:
press the ^ soft key (up arrow)

○ To select the next sub-item within a group: press the > soft key (right arrow)

○ To select the previous group:
press the < soft key (left arrow)

○ To confirm: press the ↵ soft key

Extra Functions
● Exit the Setup menu:
press the << soft key
> Restart your application

● Print parameter settings:
– When the scale functions are displayed, press F
> Printout (example)
Texts with more than 20 characters are truncated

```
Application 1
--------------------
Counting
  Average piece weigh
    Display accuracy
  Average piece weigh
    Automatic

Application 2
--------------------
Checkweighing
  Activation of port
    Within Checkweighi
  Type of Checkweighi
    Target, minimum, m
  Weight display mode
    Absolute value
  Automatic printout
    No

Application 3
--------------------
Totalizing
```

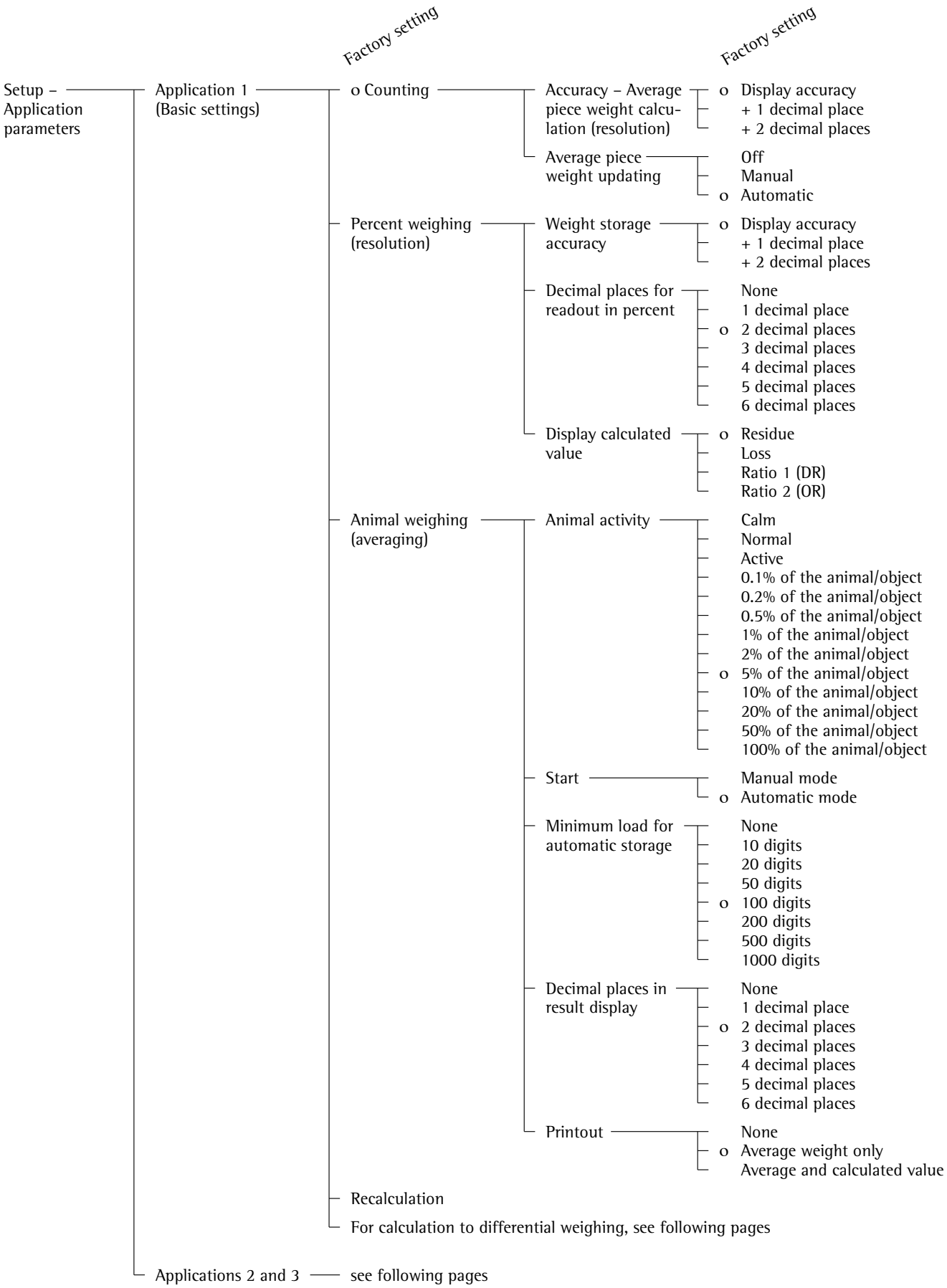
etc.

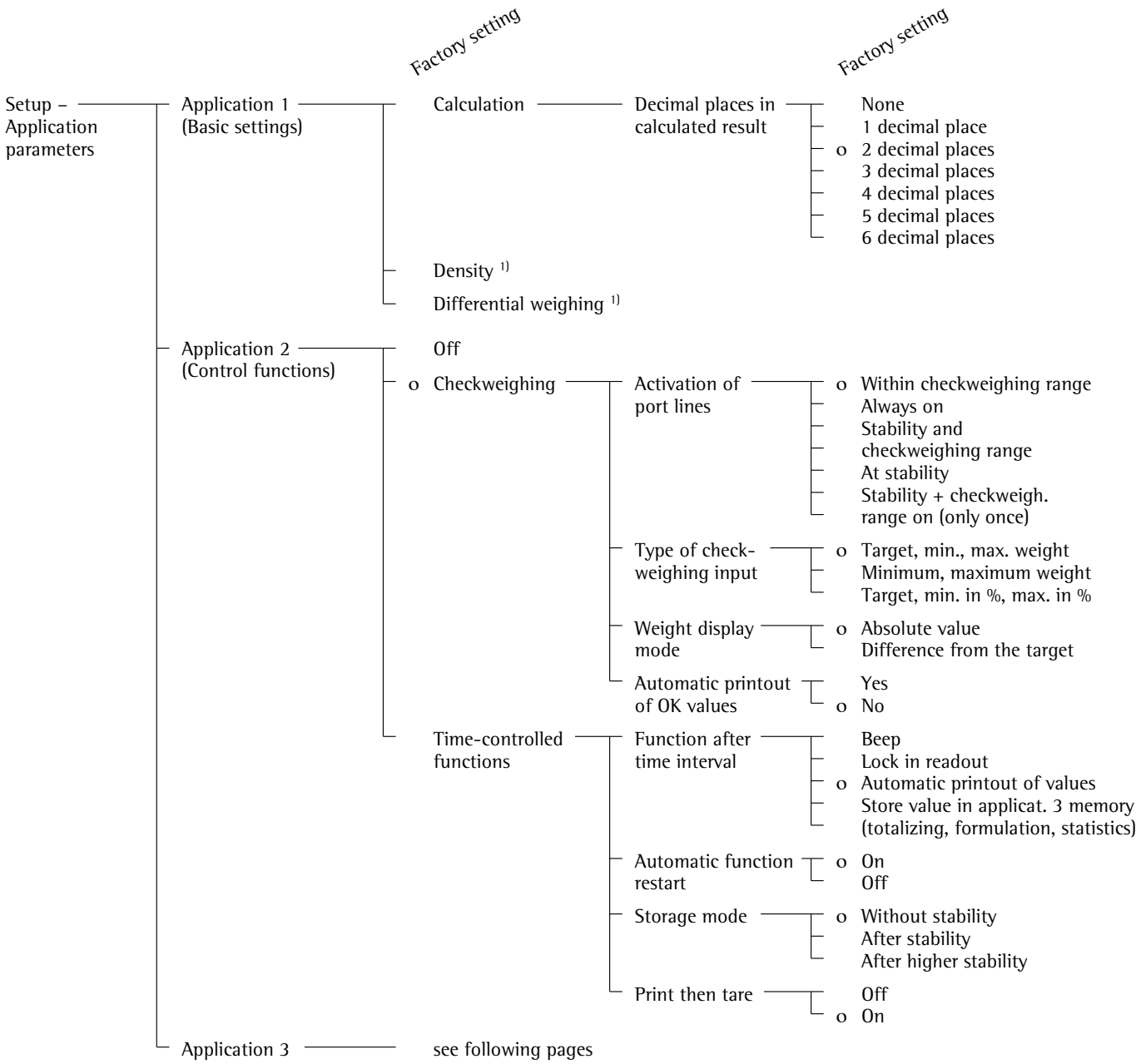
Application Parameters (Overview)

o factory settings
√ user-defined setting

* = not applicable to verified scales used in the European Economic Area
** = factory setting depends on weighing range: – ≤ 33 kg: grams
– ≥ 34 kg: kilograms

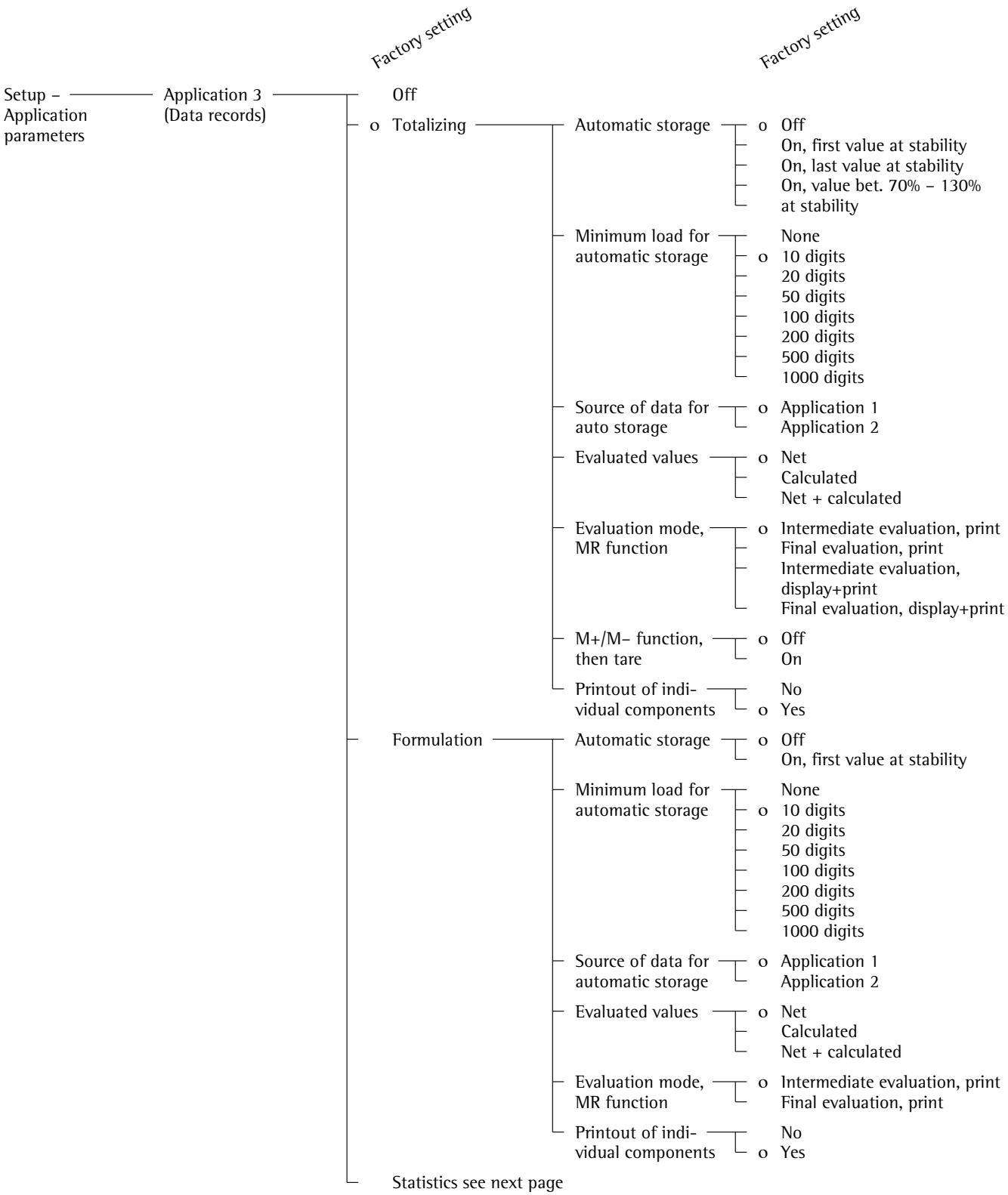
Setting the Application Parameters (Application)

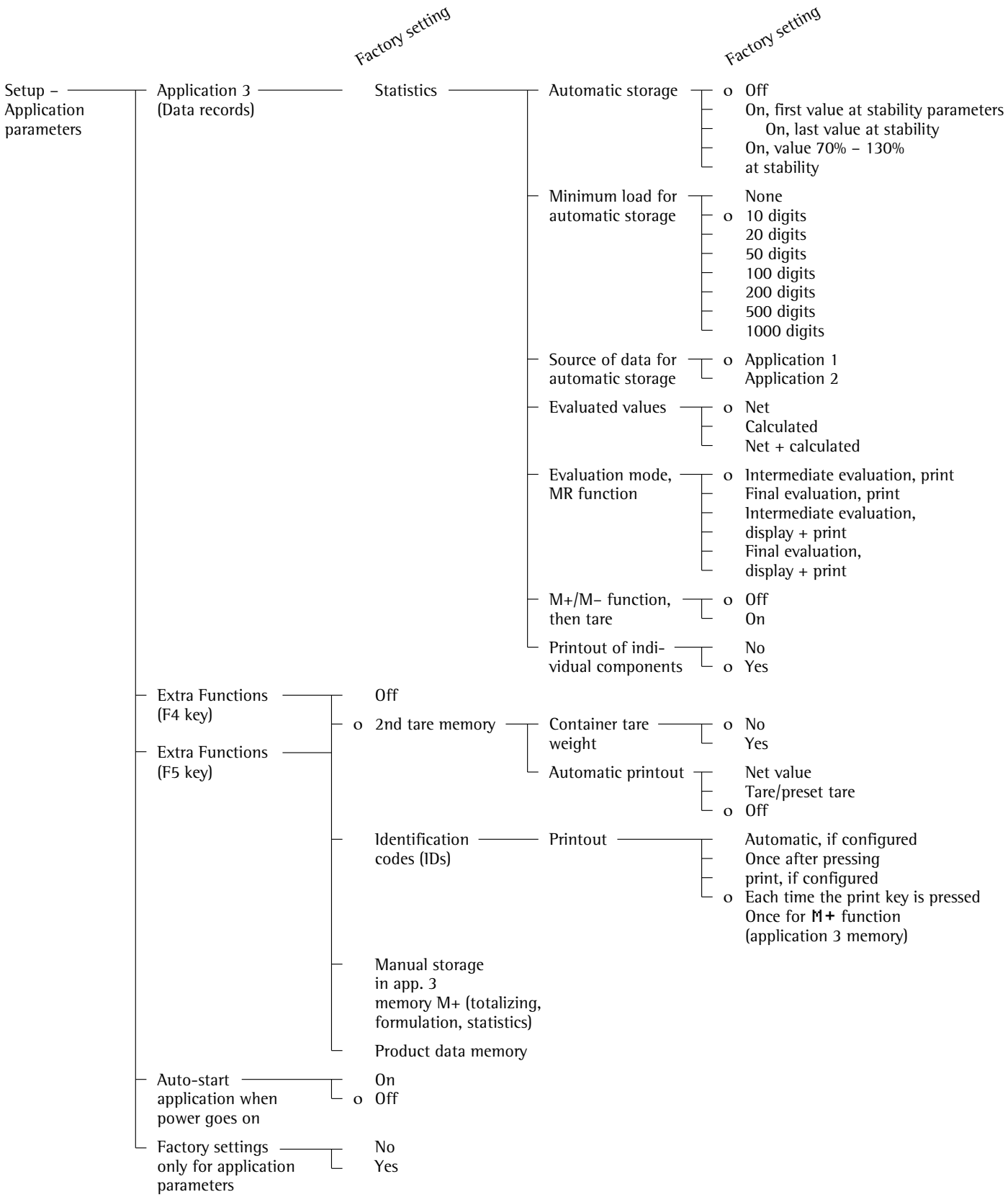




1) =For details on using the "Differential Weighing" application, please refer to the operating instructions for Master^{pro} LA balances, available on request from Sartorius or by Internet download (www.sartorius.com → Laboratory Mechatronics → Downloads; file name: "LA.pdf").

Setting the Application Parameters (Application)




Factory setting
Factory setting
Setup – Application parameters
Application 3 (Data records)
Statistics
Automatic storage
o Off
On, first value at stability parameters
On, last value at stability
On, value 70% – 130% at stability
Minimum load for automatic storage
None
o 10 digits
20 digits
50 digits
100 digits
200 digits
500 digits
1000 digits
Source of data for automatic storage
o Application 1
Application 2
Evaluated values
o Net
Calculated
Net + calculated
Evaluation mode, MR function
o Intermediate evaluation, print
Final evaluation, print
Intermediate evaluation, display + print
Final evaluation, display + print
M+/M– function, then tare
o Off
On
Printout of individual components
No
o Yes
Extra Functions (F4 key)
Off
Extra Functions (F5 key)
o 2nd tare memory
Container tare weight
o No
Yes
Automatic printout
Net value
Tare/preset tare
o Off
Identification codes (IDs)
Printout
Automatic, if configured
Once after pressing print, if configured
o Each time the print key is pressed
Once for M+ function (application 3 memory)
Manual storage in app. 3 memory M+ (totalizing, formulation, statistics)
Product data memory
Auto-start application when power goes on
On
o Off
Factory settings only for application parameters
No
Yes

Selecting the Printout Function (PRINTOUT)

Purpose
This menu item enables you to configure the printout to meet your individual requirements by selecting predefined menu parameters in the Setup menu. Printouts of weights and other measured or calculated values and IDs enable you to document your data. You can select the particular data you wish to print. To prevent changes to your settings, you can block access to the menu by assigning a password.

Features
The device parameters are combined in the following groups (1st menu level):
- Application-defined output
  - Configured Printout
  - FlexPrint
- Automatic output of displayed values
- Output to interface port
- Line format
- ISO/GMP printout
- Identification (identifier)
- Factory settings – printout only

Factory Settings
Parameters: The factory settings are identified by the symbol "o" in the list on the next page.

Preparation
Display available printout parameters

● Select the Setup menu: press Setup
> SETUP is displayed:

● Select "Printout:" use the v and > soft keys

If no password has been assigned, anyone can access the printout parameters in the Setup menu

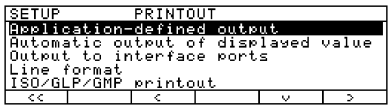
If a password has already been assigned:
> The password prompt is displayed

○ If access is blocked by a password: enter the password using the numeric and/or alphabetic keys

○ If the last character of the password is a letter: conclude input by pressing the ABC key

● Press ↵ to confirm the password

> Printout parameters are now displayed:



○ To select the next group: press the v soft key (down arrow)

○ To select the previous item of a group: press the ^ soft key (up arrow)

○ To select the next sub-item within a group: press the > soft key (right arrow)

○ To select the previous group: press the < soft key (left arrow)

○ To confirm: press the ↵ soft key

Extra Functions
● Exit the Setup menu: press the << soft key
> Restart your application

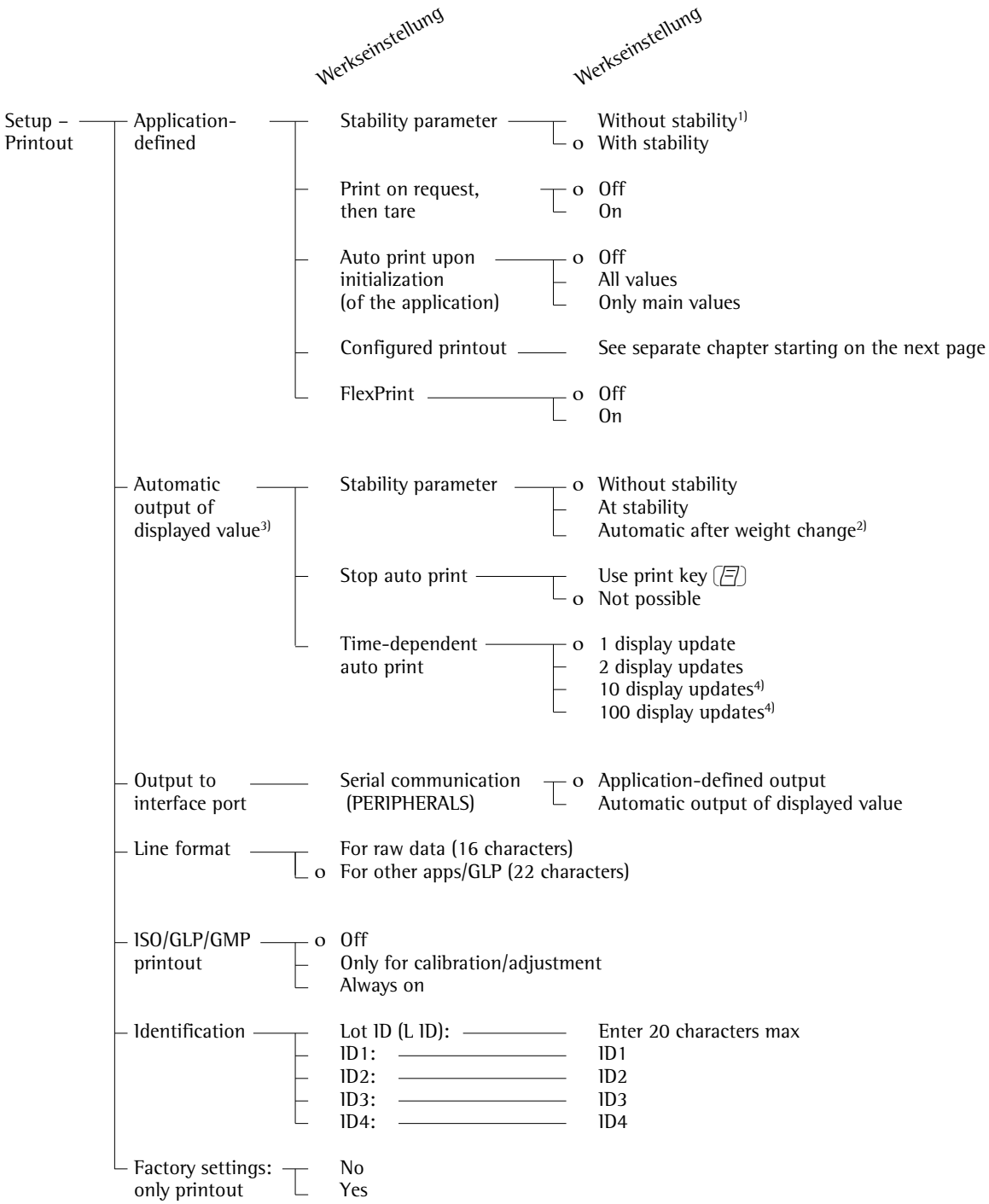
● Print parameter settings:
– When the printout parameters are displayed, press ⎙

> Printout (Example)

```
SETUP
      PRINTOUT
--------------------
 Application defined
  Stability paramete
     With Stability
  Print on request t
              Off
  Auto print upon in
          All values
  Configured printou
   Indiv.: Printout
   Comp.: Printout
   Total: Printout
  FlexPrint
                  Off
 Automatic Output of
  Stability paramet
     Without stabili
  Stop auto print
       Not possible
  Time-dependent aut
    1 display update
 Output to interface
  Serial communicat:
Application-defined
output
  Line format
For other apps/GLP
 (22 characters)
 ISO/GLP/GMP printou
                  Off
 Identification
  Lot (L ID):

  ID1:
                  ID1
```

etc.

Printout Parameters (Overview)
o factory setting
√ user-defined setting



[1)] = When the scale is used in legal metrology, this setting may be configured for control purposes only; printout of values is not permitted
[2)] = Autoprint when load change is >10 d and stability is reached: no printout until residual difference in load value >5 d
[3)] = To enable automatic output of the displayed value, the corresponding option (“Automatic output of displayed value”) must be activated under the next menu item at this level, “Output to interface port”
[4)] = These settings may not be changed on verified scales

Printout Configuration

Purpose
This menu item enables you to configure individual printout formats. With the formulation, totalizing and statistics applications, you can also define the values to be included on the total printout when the MR key is pressed.

Under “Setup: Printout: Application-defined output: Configured printout”, you can configure individual, component or total data records that contain the items available for printouts in each application. Configure these printouts after you have configured the applications, because some entries in the data record depend on the particular application.

Features
- Maximum items in a data record: 60

- Separate configuration of printout formats for individual weights, components, total, backweighing and statistics

- Individual printout generation: press the (🖹) key

  Automatic printout of application data: results from animal weighing or density application (Setup menu: Application 1: Density: Printout: All data) OK values from checkweighing application, time-controlled printouts, 2nd tare memory

- Component printout:
  For results from totalizing, formulation or statistics applications, press **M+** or **M−** (Setup: Application 3: ..., Printout of individual components: On)

- Total printout:
  For totalizing, formulation or statistics applications, press **MR**

- Backweighing printouts or records: automatically generated after backweighing or manually by pressing the (🖹) key when the result is displayed at the end of backweighing

- Statistics printout or output:
  To generate, press the (🖹) key when the statistics are displayed

  Printouts for Differential Weighing: These printouts can be generated as standard or configured (user-defined) reports.

  You can configure the following printouts:
- Individual printout
- Backweighing printout
- Statistics printouts

  Printouts are generated in one of two ways:
- at the request of the user by pressing the (🖹) key (print on request)
- automatically, if configured in the Setup menu [Application parameters: Application 1: Differential weighing: Generate printout: Auto]

  You can turn off automatic printout generation in the Setup menu [Application parameters: Application 1: Differential weighing: Generate printout: None]

  Data records are deleted after you have switched to a different application or activated or de-activated an extra function in the application parameters of the Setup menu

- A new pick list for a data record is created based on the currently active application programs and extra functions

- Printout items can be deleted individually

- No printout is generated when the following setting is configured:

  Setup: Printout: Line format: For raw data (16 characters)

- Print item “Form feed” for footer: Advance to beginning of next label in the “YDP01IS-Label” and “YDP02IS-Label” interface mode

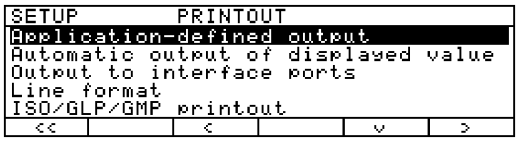
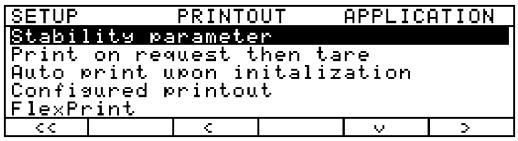
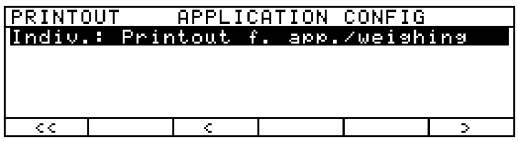
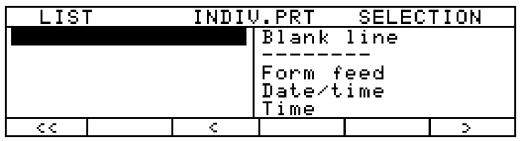
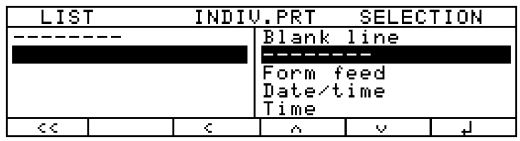
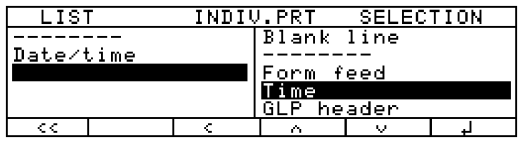
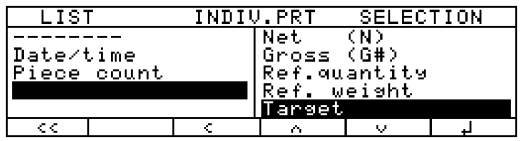
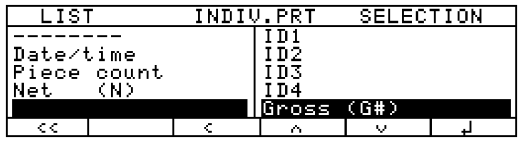
Extra Functions
● Exit printout configuration: press **<<** soft key
> Restart application

Printing “Select” and “List” Settings
- **LIST**: print the currently selected list **Select**: printout items that can still be selected

● When the select bar is on **LIST** or **Select**: press the (🖹) key
> Printout (Example)

```
BACKW. PRINT.LIST
====================
Sample date
Net initial wt.
Backweighed res
Loss in %
====================
```
etc.

Practical Example:
Configure an Individual Printout for Counting Application to Include Dotted Line, Date/Time, Piece Count and Net Weight

Step	Press key(s) (or follow instructions)	Display/Output
1. Select Setup menu, "Printout"	(Setup), then ∨ repeatedly and > soft key	
2. Confirm "Application-defined output"	> soft key	
3. Select and confirm "Configured printout"	∨ soft key 3× > soft key	
4. Confirm "Indiv. printout"	> soft key	
5. Select "Dotted line"	>, ∨, ↵ soft keys	
6. Select "Date/time"	∨ soft key twice, then ↵ soft key	
7. Select "Piece count"	∨ repeatedly, then ↵ soft key	
8. Select "Net weight"	∧ soft key repeatedly, then ↵ soft key	
9. Exit "Printout configuration"	<< soft key	
10. Perform weighing operations, then print	(Print)	-------------------- 14.01.2000 09:19 Qnt + 598 pcs N + 2003.13 g

Printout Configuration

Data Items for the Printout:

Parameter	Display text	Indiv.	Comp.	Total
Blank line**	Blank line	x	x	x
Dotted line**	--------	x	x	x
Form feed*	Form feed	x	x	x
Date/Time*	Date/Time	x	x	x
Time with seconds*	Time	x	x	x
GLP header*	GLP header	x	x	x
GLP footer*	GLP footer	x	x	x
Sample ID*	S ID	x	x	x
ID 1*	ID1	x	x	x
ID 2*	ID2	x	x	x
ID 3*	ID3	x	x	x
ID 4*	ID4	x	x	x
Net weight*	Net (N)	x		
Gross weight*	Gross (G#)	x	x	x
Preset tare/ Tare 1 weight*	Tare1 (T1/PT1)	x	x	x
With "Counting" application:				
Reference quantity	Ref. quantity	x	x	x
Reference weight	Ref. weight	x	x	x
Piece count	Piece Count	x		
With "Weighing in percent" application:				
Reference percentage	Ref. percent	x	x	x
Reference weight	Ref. weight	x	x	x
Percentage	Percent	x		
With "Animal Weighing" application:				
Number of weighing operations	No. of weights	x	x	x
Calculation factor	Factor	x	x	x
Average animal weight	Mean value	x		
Average Animal weight calculated	Mean factor	x		
With "Calculation" application:				
Equation	Equation	x	x	x
Calculated result	Calc. result		x	

* = Items are available independently of the applications selected
** = Items are available independently of the applications selected and can be selected more than once

Data Items for the Printout:

Parameter	Display text	Indiv.	Comp.	Total
With the "Check-weighing" application:				
Target value	Target	x	x	x
Minimum value	Minimum	x	x	x
Maximum value	Maximum	x	x	x
With "Time-controlled Functions" application:				
Time/interval	Time/interval	x		
With the "Totalizing" application:				
No. of weights	No. of wts.		x	x
Weight of transaction	Trans. wt.		x	
Weight total	Wt. total			x
Number of calculated values	No.of calc.val.		x	x
Calculated value transactions	Calc.val.trans.		x	
Total of calculated values	Total calc.			x
Nominal no. of weighing operations	Nom.no.wghs.		x	x
With "Formulation" application:				
Number of components	Number		x	x
Net component	Net component		x	
Components calculated	Net transact.		x	
Total net components	Net/comp.calc.			x
Total calc. components	Tot.comp.calc.			x
Preset tare/ Tare 2 weight	Tare2	x	x	x
Nominal no. of weighing operations	Nom.no.wghs.		x	x
With the "Statistics" application:				
No. of weights	No. of wts.		x	x
Weigth of trans.	Trans. wt.		x	
Mean weight	Average wt.			x
Standard deviation – weight	Std.dev.wt.			x
Variation coefficient –weight	Var.coeff.wt.			x
Weight total	Wt.total			x
Minimum weight	Min. wt.			x
Maximum weight	Max. wt.			x
Difference – weight	Diff. wt.			x
No. of calc. values	No. of calc. val.		x	x
Calc. value – transactions	Calc.val.trans.		x	
Mean calc. value	Mean calc. val			x
Standard derivation calculated values	Std.dev.calc.			x
Variation coefficient – calc. values	Var.coeff.calc.			x
Total – calc. values	Total calc.			x
Minimum – calc. values	Min. calc.			x
Maximum – calc. values	Max. calc.			x
Difference – calc. values	Diff. calc.			x
Nominal no. of weighing operations	Nom.no.wghs		x	x

Displaying Info

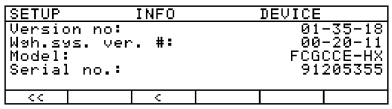
Purpose
This menu item enables you to have information displayed about the specific scale (“device”), as well as “FlexPrint” information.

Displaying Device Information

- Select the Setup menu:
  press the Setup key
> “SETUP” is displayed:

- Select “Device information”:
  Repeatedly press the v soft key,
  then press the > soft key

- Press > soft key to confirm “Device information”
> Device information is displayed:



- Print device information:
  Press the key

> Printout (Example)

```
--------------------
23.02.2000      13:02
Model          FCGCCE-H
Ser. no.      91205355
Vers. no.     01-35-18
```
(Version of the operating program)
```
ID             BECKER123
```
(User-ID)
```
--------------------
SETUP
         INFO
                  DEVICE
--------------------
 Version-no.:
                01-35-18
```
(Version of the operating program)
```
 Wgh. sys. vers:
                00-20-11
```
(Version no. of the weighing cell)
```
 Model:
                FCGCCE-H
 Serial no.:
                91205355
--------------------
```

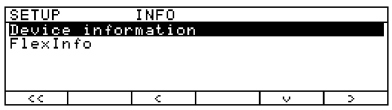
- Return to SETUP overview:
  press the < soft key

- Exit Setup menu:
  press the << soft key
> Original settings are restored

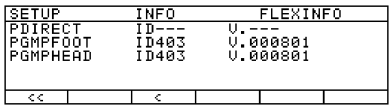
Display Flexprint Information

- Select the Setup menu:
  press the Setup key
> “SETUP” is displayed:

- Select “Info”: press the v soft key
  repeatedly and then the > soft key



- Select “FlexInfo”: press the v soft key
  and then the > soft key
> The FlexPrint information is displayed, with print instruction file name, software ID and version number:



○ To select a particular print file name with software ID (for example, ID403), if desired: press key v or ^ as required

> If the display shows `ID---` :
  The weight block for legal metrology is not printed by this print file.

> Display of version number:
  `V.xx.xx.xx`
  Created by Sartorius:
  `V.S.xx.xx.xx`

- Return to SETUP overview:
  press the < soft key

- Exit Setup menu:
  press the << soft key
> The device returns to the previous mode

MP8 Interface Emulation

Purpose
With the MP8 interface emulation function, you can connect peripheral devices of the MP8 generation that have separate AC power supplies (such as the 73822... Data Control terminal, a YFC..., or a YDI 50 Z Data Input dedicated keyboard, for example) to your scale.

Features
- The scale can be used only to determine weights.
- The interface communicates exclusively in the MP8 binary protocol.
- Select the application program and the program index for MP8, as well as individual application parameters, in the Setup menu.
- See next page for menu setting options.

Preparation
- Activate the MP8 emulation mode*:

● Press Setup

● Select the `factory settings` and confirm: press the `v` soft key repeatedly and then the `>` soft key

● Select `Reset to MP8`: press `v` soft key and `>` soft key

● Select `Yes` and press ↵ to confirm
> The terminal is restarted

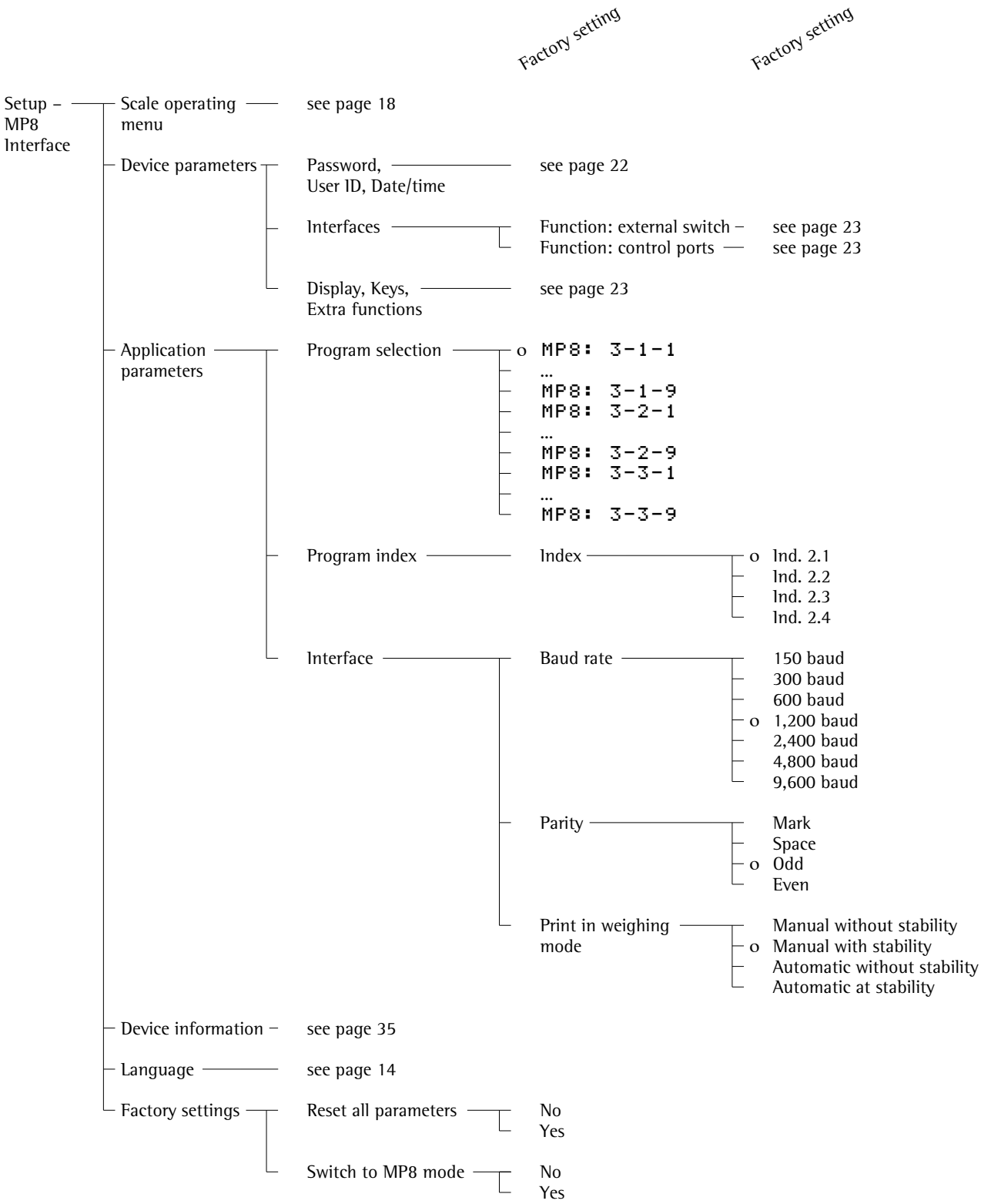
* follow the same procedure to return from MP8 emulation back to factory setting

Factory Settings

Each parameter category has a factory setting. To restore the factory settings, select this item in the Setup menu and select `YES` to confirm.

The following parameters are not restored to factory settings when you activate this function:
- Language
- Password
- Display contrast
- Time (clock)

MP8 Interface Emulation Parameters (Overview)
o Factory setting
√ User-defined setting



Basic Weighing Function

Purpose
The basic weighing function is always accessible and can be used alone or in combination with an application program (Toggle between Weight Units, Counting, Weighing in Percent, etc.).

Features
- Taring the scale
- Assigning IDs to weights
- Printing weights
- Printing ID codes for weights

Factory Settings
Tare: `After stability`

Manual/auto print mode:
`Manual with stability`

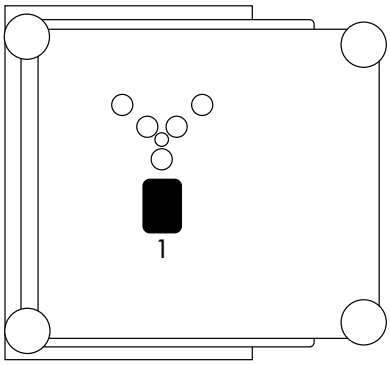
Line format:
`For other apps/GLP (22 characters)`

Soft Key Functions

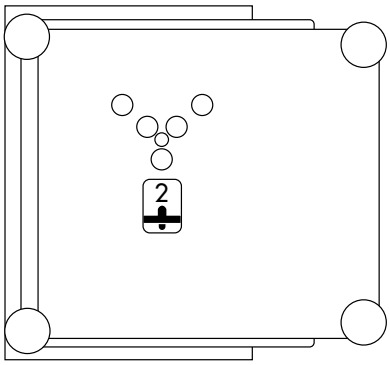
`isoTST`	Initiate calibration/ adjustment routine
`isoCAL`	Press to start isoCAL routine
`S ID`	Store ID entered

Under-Scale Weighing
A port for a under-scale weighing hanger is located on the bottom of the scale.

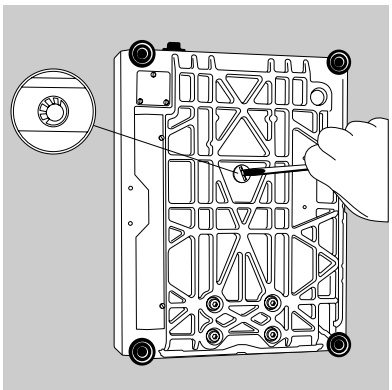
FC... BBE, FC... CCE:
● Open cover plate **(1)** on the bottom of the scale



● Attach the sample (e.g., using a suspension wire) to the hook **(2)**.



FCG... EDE:
● Use a suitable screwdriver to remove the cover plate from the bottom of the scale.



● Fasten the hook to the cross-bar (see “Accessories”).

○ If necessary, install a shield for protection against drafts

⚠**Important Note Concerning Verified Scales Approved for Use as Legal Measuring Instruments in the EU*:**
The under-scale weighing port may not be opened or used when an approved scale is being operated as a legal measuring instrument.

Preparation
● Turn on the scale: Press I/⏻
> The Sartorius logo is displayed

○ To tare the scale, if desired: Press Tare
> The ⭘ symbol is displayed when a verified scale is tared or zeroed (±0.25 digits).

For Service Personnel:
Important Note Concerning Verified Scales Approved for Use as Legal Measuring Instruments in the EU*:
The type-approval certificate for verification applies only to non-automatic weighing instruments; for automatic operation with or without auxiliary measuring devices, you must comply with the regulations of your country applicable to the place of installation of your scale.

● You must calibrate the scale at the place of installation before using it as a legal measuring instrument (see the section entitled “Calibration and Adjustment” in this chapter)

○ The temperature range indicated on the verification ID label must not be exceeded during operation

* including the Signatories of the Agreement on the European Economic Area

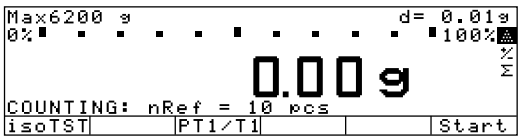
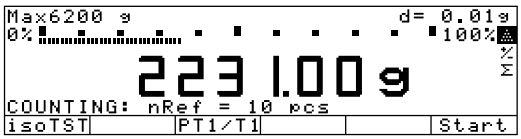
Additional Functions
In addition to the functions:

- alphanumeric input
- taring (not during alphanumeric input)
- printing

you can also access the following function from the weighing application:

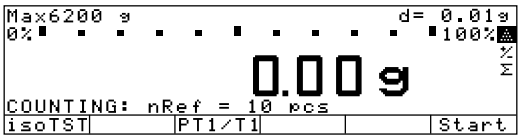
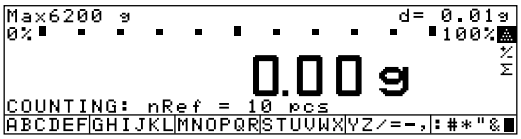
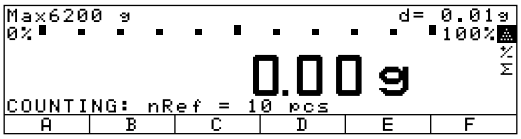
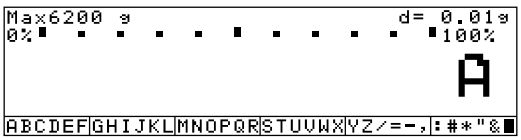
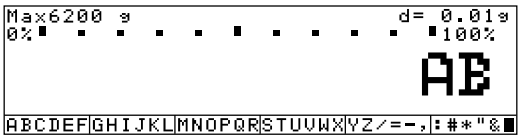
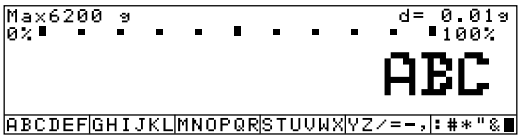
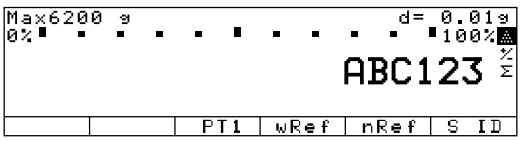
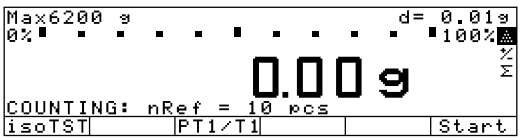
Calibration
● Press isoTST
> See the section on “Calibration/ Adjustment” for further instructions.

Practical Examples
Example W1: Simple weighing

Step	Key (or instruction)	Display/Output
1. If necessary, tare the scale (O symbol: scale is tared, – verified scales only)	Tare	
2. Enter sample ID	see Example W2	
3. Determine sample weight (Example)	Place load on scale	
4. Print weight value	(E)	S-ID ABC123 N + 2231.56 g

Example W2
Enter “ABC123” as sample ID

⚠ Note:
– The sample ID generally applies to one weighing operation only
– The ID is deleted after data output

Step	Key (or instruction)	Display/Output
Initial status (scale unloaded) (ID can also be entered while scale is loaded)		
1. Select alphabetic input	ABC	
2. Select the required letter group	ABCDEF soft key	
3. Enter the letter “A” (To delete a letter:	A soft key CF)	
4. Select the letter group and enter “B”	ABCDEF soft key B soft key	
5. Select the letter group and enter “C” (If only letters are entered, conclude input:	ABCDEF soft key C soft key ABC)	
6. Enter the numbers 1, 2 and 3	1 2 3	
7. Store the ID (max. 20 characters) – The next printout will include the sample ID	S ID soft key	

Device Parameters

Password
You can enter a password to block access to the operating menu and to the functions for ID code input and exact calibration weight input.

For details, see “Setting the Device Parameters” in the chapter entitled “Configuration.”

User ID
You can enter your own personal password (20 characters max.)

Clock
ISO/GMP printouts in particular must be generated with the date and time stamp of the specific measurement. This date and time stamp is optional on other printouts.

For details, see “Setting the Device Parameters” in the chapter entitled “Configuration”.

Interface

Purpose
This item enables you to set the parameters for the following interfaces:

- Serial interface port

- External switch function

Serial communications port
You can set the serial communications port to use for the following modes:
- SBI
- XBPI
- YDP01IS
- YDP02
- YDP03
- YDP01IS-Label
- YDP02IS
- YDP02IS-Label
- Universal
- YDP04IS
- YDP04IS-Label

Universal Remote Switch
You can connect an external universal remote switch (foot switch) to one of the two serial ports. Then you can assign one of the following functions to be performed when the switch is activated:
- Print key
- Tare key
- Cal key
- F1 function key
- CF key
- F2 function key
- Bar code scanner, PC keyboard
(Special adapter necessary/ Order no. YCC01-0024M01)

“PC Keyboard” Functions
The alphanumeric key codes implemented are for a German keyboard layout only (“Z” in the first row instead of “Y”, for example).
Some of alphanumeric keys are used with the [Shift] key:
a-z, A-Z, 0-9, Space,„„.\+#<>!”$@% &t/();=:_?*”

Function key:

PC keyboard	Balance
F1	Tare key
F2	Setup key
F3	Soft key 6
F4	Soft key 5
F5	Soft key 4
F6	Soft key 3
F7	Soft key 2
F8	Soft key 1
F9	Display
F10	Escape
F11	Print key (print)
F12	Tare key
Return	Soft key 1
Backspace	Escape
Up Cursor	Soft key 3
Left Cursor	Soft key 4
Down Cursor	Soft key 2
Right Cursor	Soft key 1
POS1 (HOME)	Soft key 6
ESC	Escape
PRINT	Print key

The “Num Lock” und “Caps Lock” keys are not supported. There is no country-specific option for switching these keys to a different function.

Control Port Function
You can connect either a checkweighing display or an external universal switch to the serial communications port on the scale (factory setting).

To do so, you need to configure the interface for input or output.

Pin Assignment Chart of the Female Interface Connector

Pin	Function: Input
15	Print key; see “Universal switch”
16	Tare key
17	Soft key 6 (Cal)
18	Soft key (F1)
19	CF key

Pin	Function: Output
15	“External switch” (see above)
16	Control port 1: lighter
17	Control port 2: equal
18	Control port 3: heavier
19	Control port 4: “set”

For further information on the pin assignment chart, see the section on “Pin Assignment Charts” in the chapter entitled “Overview.”

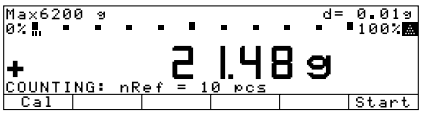
Device Parameters

Display
You can configure the display for your individual needs.

The contrast can be adjusted in 5 levels:
`Contrast`

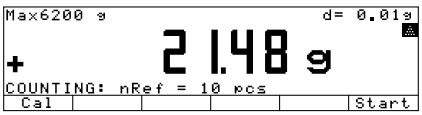
Characters can be displayed in black on white or vice versa: `Background`

You can blank out either the bar graph or the text line or both: `Digit size`

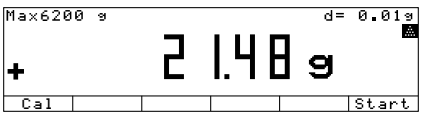


`10mm + bar graph + text display`

`13mm + bar graph`



`13mm + text display`



`13mm`

You can blank out the display of application symbols: `Application symbols`

Keys
You can assign different functions to the CF key for deleting input and applications.

When you delete applications, you can delete either the data stored for all applications or just selected data.
`CF function in application`

When you delete input, you can either delete all the data input in a field, or only the last character entered.
`CF function for inputs`

You can block key functions; you can choose whether to block all keys (except I/⏻ and Setup, or just the alphanumeric keys.
`Block key functions`

Extra Functions
Acoustic Signal
An acoustic signal is emitted when you press a key. When the key pressed is allowed, the signal is a single beep-tone; when it is not allowed, this is signaled by a double-beep (key does not initiate a function). In the Setup menu, you can configure whether

– the acoustic signal should sound (`On`)

– the acoustic signal should not sound (`Off`)

Power-On Mode
You can configure the scale so that when a power supply is connected,

– the scale is off (`Off/on/standby` or

– the scale switches on automatically (`Auto on`)

You can also configure the scale to go into the standby mode (`Off/on/standby`) when it is turned off.

After you turn on the scale, a self-test of the functions is run (`TEST` is displayed in the text line and the bar graph is shown)

MP8 Interface Emulation

Purpose
With the MP8 interface emulation function, you can connect peripheral devices of the MP8 generation that have separate AC power supplies (such as the 73822... Data Control terminal, a YFC..., or a YDI 50 Z Data Input dedicated keyboard, for example) to your FC scale.

Features
– The scale can be used only to determine weights.
– The interface communicates exclusively in the MP8 binary protocol.
– Select the application program and the program index for MP8, as well as individual application parameters, in the Setup menu.

Preparation
– Activate the MP8 emulation mode*:

● Press Setup

● Select the `factory settings` and confirm: press the `v` soft key repeatedly and then the `>` soft key

● Select `Reset to MP8`: press `v` soft key and `>` soft key

● Select `Yes` and press ↵ to confirm

> The scale is restarted

* follow the same procedure to return from MP8 emulation back to factory setting

Factory Settings
Each parameter category has a factory setting. To restore the factory settings, select this item in the Setup menu and select `YES` to confirm.

The following parameters are not restored to factory settings when you activate this function:
– Language
– Password
– Display contrast
– Time (clock)

Calibration/Adjustment “isoTEST”

Purpose
Calibration is the determination of the difference between the weight readout and the true weight (mass) of a sample. Calibration does not entail making any changes within the scale.

Adjustment is the correction of this difference between the measured value displayed and the true weight (mass) of the sample, or the reduction of the difference to an allowable level within maximum permissible error limits.

Using Verified Scales as Legal Measuring Instruments in the EU*:
Before using your scale as a legal measuring instrument, you must perform “internal calibration” at the place of installation after the warmup period.

Available Features
You can start the isoTEST function at the press of a key to check a scale used as measuring, inspection and test equipment at any time. The scale is calibrated and any deviation is displayed. Press the `Start` soft key to start adjustment. If you do not wish to have the scale adjusted, press the `End` soft key to cancel the isoTEST.

Your scale can be calibrated externally (Scale parameters: Calibration/adjustment: CAL key function; menu item `Ext. cal./adj.: factory-def. wt.` or `Ext. cal./adj.: user-defined wt.`) or internally (`Internal cal./adjustment`).

External calibration can be performed
- using a pre-set weight value `Ext. cal./adj.: factory-def. wt.`, or
- with a user-defined weight `Ext. cal./adj.: user-defined wt.`

The adjustment can be performed
- automatically following calibration: `Cal., then auto adjust.` or
- if desired, the adjustment operation can be started manually after calibration: `Cal., then manual adjust`

You can also configure whether the calibration mode
- will be activated according to the specific setting (external/internal) or
- can be selected by the user after pressing the `isoTST` soft key: `Selection mode`.

You can have the scale automatically display an adjustment prompt after a certain time interval has elapsed since the last calibration/adjustment or when the ambient temperature changes by a defined amount.

You can also configure the scale to perform calibration and adjustment automatically (isoCAL) when the pre-set time and/or temperature limit is reached `On and reset application` and `On without resetting app`.

You can have the calibration/adjustment results documented in a ISO/GMP-compliant printout; see page 107.

Factory Settings
Calibration/adjustment mode: `Internal cal./adjustment`

Calibrate, then manual adjust: `Calibrate, then manual adjust`

isoCAL function (automatic initiation of cal./adj. sequence): `On without resetting app.`

For service technicians only:
External Calibration in Verified Scales of Accuracy Class Ⓘ
- External calibration is blocked when the scale is used in legal metrology

> External calibration can only be released after removing the verification control seal, in which case the validity of the verification becomes void and the scale must be re-verified

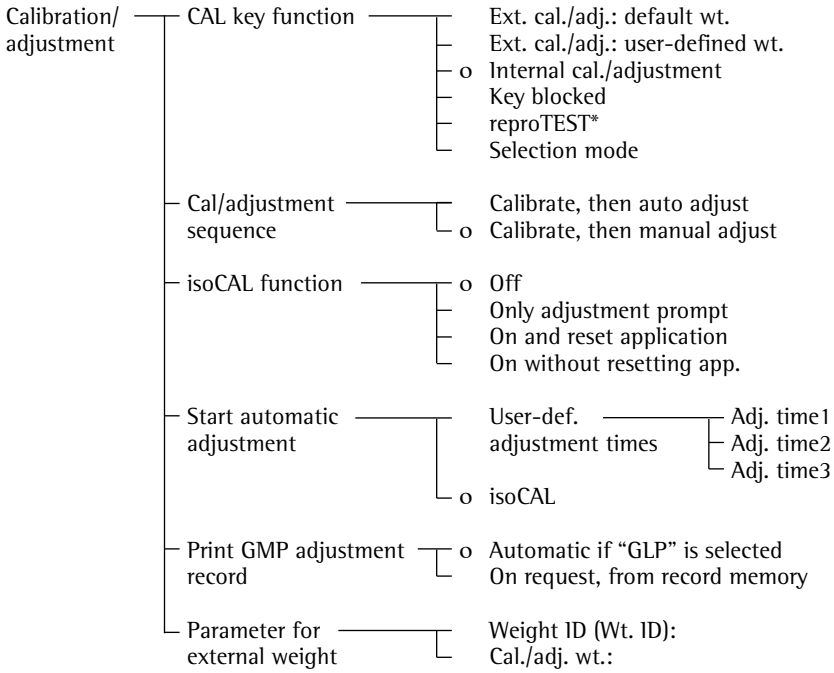
- External calibration can now be performed

* including the Signatories of the Agreement on the European Economic Area

Calibration/Adjustment

Preparation

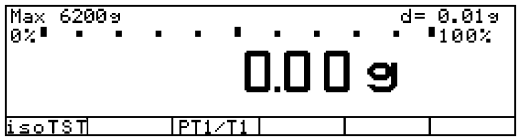
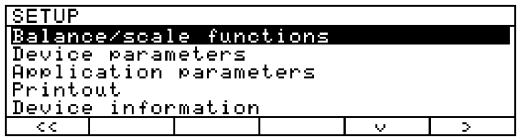
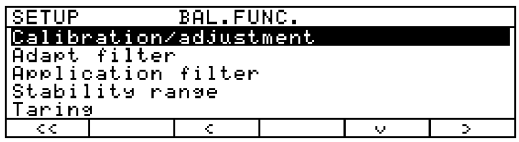
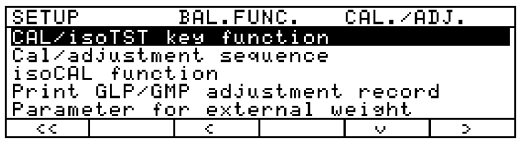
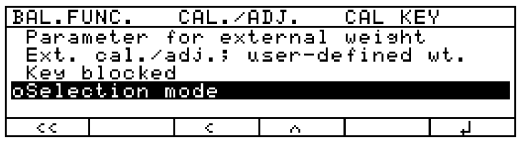
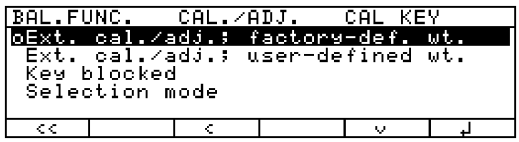
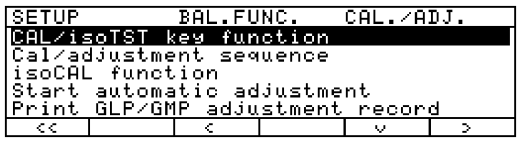
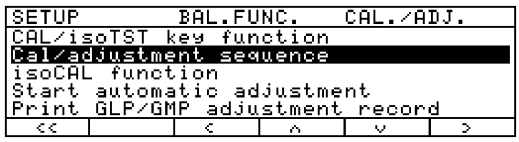
- Select the scale function for “calibration/adjustment”: press Setup
- To select the `Balance/scale functions`: press the `>` soft key
- Select `Calibration/adjustment`: press the `>` soft key

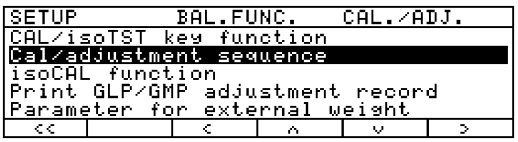
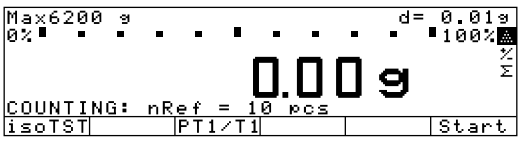


o = factory setting

- Save settings and exit Setup menu: press the `<<` soft key

Preparation
Set the parameters for calibration and adjustment; e.g., with manual calibration/adjustment

Step	Press key(s) (or follow instructions)	Display/Output
1. Switch on the scale, if not already on	I/⏻	Sartorius logo and self-test 
2. Select the Setup menu	Setup	
3. Select “Balance/scale functions”	> soft key	
4. Select “Calibration/adjustment”	> soft key	
5. Select CAL/isoTST key function	> soft key	 o = last setting selected
6. Select desired function and confirm (e.g., “Ext. cal./adj.; factory-def. wt.”)	^ soft key, repeatedly, if necessary ↵ soft key	
7. Exit CAL/isoTST key function	< soft key	
8. Select “Cal./adjustment sequence”	v soft key	

Step	Press key(s) (or follow instructions)	Display/Output
9. Confirm calibration and adjustment sequence	> soft key	 o = last setting selected
10. Select other settings, if desired and confirm (e.g., Calibration with manual adjustment)	v and ↵ soft keys	
11. Exit Cal./adjustment sequence	< soft key	
12. Save settings and exit the Setup menu	<< soft key	

Internal Calibration/Adjustment

First set either `Internal cal./adjustment` or `Selection mode` (factory setting) in the Setup menu under "Scale functions: Calibration/ adjustment: CAL key function."

Inside the scale housing is a built-in motorized calibration weight.

The internal calibration/adjustment sequence is as follows:

● Select the calibration function: Press the `isoTST` soft key twice

> The internal calibration weight is applied automatically

> The scale is calibrated

> If the setting `Calibrate, then auto adjust` is selected in the Scale menu, the scale is now automatically adjusted

> If the setting `Calibrate, then manual adjust` is selected in the Scale menu, the internal calibration routine is now ended without adjusting the scale (see "Calibration and Adjustment Sequence", next column)

> The internal calibration weight is removed

> (ISO/GMP printout: see page 107)

Calibration and Adjustment Sequence

In the Setup menu, you can configure the scale so that:

– calibration is always followed automatically by adjustment `Calibrate, then auto adjust` (factory setting) or

– you have the choice of ending the sequence or starting adjustment after calibration `Calibrate, then manual adjust`

If no deviation is determined in calibration, or the deviation is within the tolerance limits dictated by the degree of accuracy you require, it is not necessary to adjust the scale. In this case, you can end the calibration/ adjustment sequence after calibration.

There are 2 soft keys active at this point:

– `Start` to start adjustment
– `End` to end the sequence

Calibration/Adjustment

Selecting the Calibration/Adjustment Parameter
The setting `Selection mode` must be selected in the Setup menu under "Scale functions: Calibration/adjustment: CAL key function."

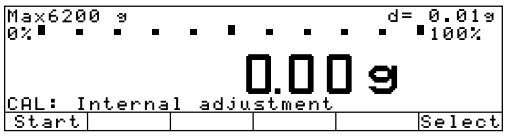
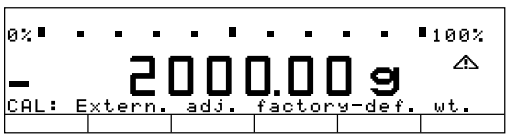
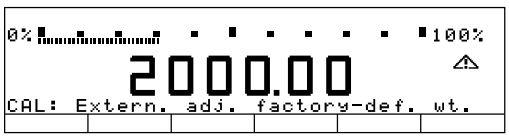
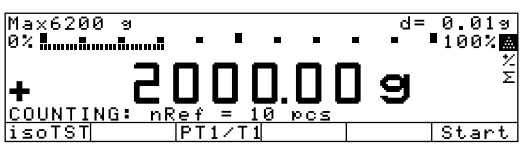
After pressing the `isoTST` soft key, you can choose from among the following settings by pressing the `Select` soft key:

- External calibration/adjustment with the preset calibration weight: `Ext. cal./adj.: factory-def. wt.`
- External calibration/adjustment with a calibration weight determined by the user: `Ext. cal./adj.: user-defined wt.`
- Internal calibration/adjustment `Internal cal./ adjustment`
- Reproducibility test `reproTEST`

● Start the desired routine:
Press the `isoTST` soft key again

In the selection mode: Perform external calibration followed by automatic adjustment with the factory-set weight

Configuration:
Factory settings

Step	Key(s) (or instruction)	Display/Output
1. Select Calibration	`isoTST` soft key	
2. Select external calibration/adjustment with factory-defined weight (for scales of accuracy class II, only "external adjustment" is possible)	`Select` soft key repeatedly	
3. Start external calibration/ adjustment	`Start` soft key	
4. Place the weight on the scale (e.g., 2,000.00 g) Minus sign –: Weight too low Plus sign + Weight too high no plus/minus sign: Weight o.k.	Place weight on scale	
This is displayed after calibration, for approx.10 seconds: (on verified scales, the difference between the displayed weight and the true weight (mass) is displayed)		
5. Unload the scale (ISO/GMP printout: see page 107)		

External Calibration/Adjustment* with a User-Defined Calibration Weight
First set either `Ext. cal./adj.:user-defined wt.` or `Selection mode` (factory setting) in the Setup menu under "Scale functions: Calibration/adjustment: CAL key function."

You can define a weight for calibration/adjustment. External calibration/adjustment must be performed with weights that are traceable to a national standard and that have error limits which are at least 1/3 of the required tolerance of the display accuracy.

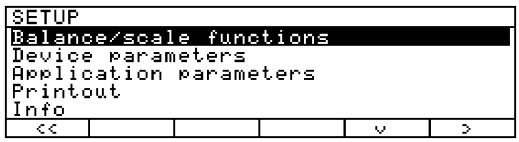
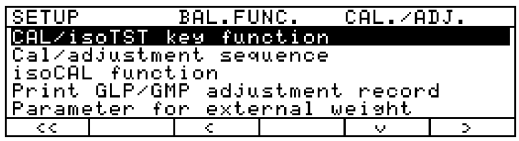
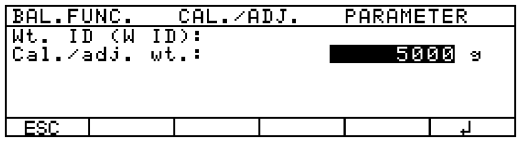
See page 48 for the external calibration/adjustment sequence. For this example, select external calibration/adjustment with a user-defined weight.

The scale has a factory-set weight value (see "Specifications").

To reset a user-defined calibration weight to the original factory setting:

○ Enter the factory-defined value manually (see "Specifications")

Define the Calibration Weight

Step	Press key(s) (or follow instructions)	Display/Output
1. Select Setup menu	Setup	
2. Select "Balance/scale functions"	> soft key	
3. Select "Calibration/adjustment"	> soft key	
4. Select parameter for external weight	v soft key 5 x > soft key	
5. Select "Cal./adj. wt."	v soft key	 3000 = last setting selected
6. Enter calibration weight (e.g., 5000 g) and save	5 0 0 0	
7. Save the calibration weight	↵ soft key	
8. Exit the Setup menu	<< soft key	

Calibration/Adjustment

isoCAL:
Automatic Calibration and Adjustment
First set either `On and reset the application` or `On without resetting the app.` (factory setting) in the Setup menu under "Scale functions: Calibration/adjustment: isoCAL function."

The "isoCAL" symbol automatically begins flashing if the ambient temperature changes in relation to the temperature at the time of the last calibration/adjustment, or after a defined time interval has elapsed. The scale is telling you that it wants to adjust itself.

This automatic calibration prompt is triggered when:

- The change in temperature is greater than 10°C
- The scale is not in the Setup mode
- No number or letter input is active
- The load has not been changed within the last 2 minutes
- The scale has not been operated within the last 2 minutes
- The load on the scale does not exceed 2% of the maximum capacity

When these requirements are met, `C` is displayed in the measured value line.

If the scale is not operated and the load is not changed, internal calibration and adjustment starts after 15 seconds have elapsed.

Automatic Calibration and Adjustment at Specific Times
In the Setup under "Scale functions: Calibration/adjustment: Start automatic adjustment: User-def. adjustment times" you can enter up to three times of day for automatic calibration/adjustment.

When one of these times is reached, the scale will display the flashing calibration prompt ("isoCAL"). Calibration/adjustment is not performed if the scale is off or in the Setup mode at the time set for calibration.

If the scale is being operated at the time set for automatic calibration/adjustment, the calibration/adjustment sequence is prompted afterward.

Automatic calibration/adjustment is prompted at set times when:

- The set time is reached
- The scale is not in the Setup mode
- No alphanumeric input is active (e.g., equation for calculation)
- The load has not been changed within the last 2 minutes
- The scale has not been operated within the last 2 minutes
- The load on the scale does not exceed 2% of the maximum capacity

In the Setup menu, you can configure the scale so that after calibration and adjustment

- the application program is restarted
  `On and reset the application`
- the application program remains at its previous status
  `On without resetting the app.`

Also in Setup, you can configure the scale so that it displays a calibration prompt, but does not perform the calibration/adjustment functions automatically
`Only adjustment prompt`

Printout for Calibration/Adjustment
You can have the results of a calibration/ adjustment procedure printed out.
You can configure whether the printout is generated as soon as the procedure is completed, or whether a number of calibration/ adjustment procedures (up to 50) are collected for a block printout.

Block Printout of Calibration/Adjustment Data
With the following Setup menu configuration, you can store the data from up to 50 calibration/adjustment procedures and have them printed on request:

- isoCAL printout
  `On request, from record memory`

When the memory contains 50 data records:
- additional records are output automatically

If at least one block printout data record has been configured, the following soft keys are available after you press the `isoTST` soft key:

`Info`	The number of records is displayed in the text line
`PrtPro`	Print accumulated records
`DelPro`	Delete accumulated records; records can only be deleted after a printout has been generated. If a password has been assigned in the Setup: Input menu, you must enter either the configured password or the General Password before you can delete the records.

For internal calibration/adjustment, the initialization mode of the procedure is displayed in the `Start` line.

```
--------------------
13.05.1997     09:17
       SARTORIUS
Mod.          FC6CCE-H
Ser. no.      70419914
Ver. no.      01-35-18
ID
--------------------
```

GLP header

List of Calibration/Adjustment Procedures:

Example 1:
External calibration

```
24.04.1997     12:03
Start:          manual
Diff. +       0.01 g
External calibration
       completed
```

Example 2:
isoCAL triggered by difference in temperature

```
25.04.1997     12:10
Start:    isoCAL/temp
Diff. +       0.01 g
Internal adjustment
       completed
Diff. +       0.00 g
```

Example 3:
isoCAL at defined time

```
25.04.1997     18:30
Start:      Adj.time
Diff. +       0.01 g
Internal adjustment
       completed
Diff. +       0.00 g
```

Example 4:
Internal calibration/adjustment triggered manually

```
26.04.1997      9:37
Start:          manual
Diff. +       0.01 g
Internal adjustment
       completed
Diff. +       0.00 g
```

Example 5:
External calibration/adjustment

```
27.04.1997     11:53
Start:        Ext.cal.
W ID
Nom.   + 2,000.00 g
Diff. +       0.01 g
External calibration
       completed
Diff. +       0.00 g
```

GLP footer

```
--------------------
13.05.1997     09:17
Name:

--------------------
```

Determination of the Repeatability (reproTEST)

Definition
Repeatability is the ability of the scale to display identical readouts when it is loaded several times with the same weight under constant ambient conditions.

The standard deviation for a given number of measurements is used to quantify the repeatability.

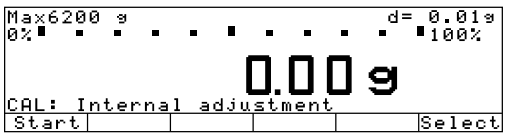
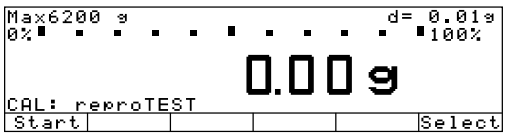
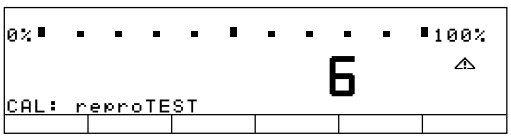
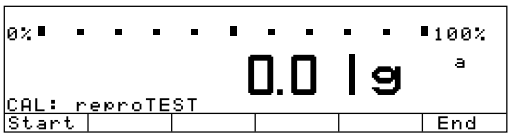
Purpose
The "reproTEST" function automatically determines the repeatability of results (based on 6 individual measurements).

In this way, the scale determines one of the most important quantities in relation to the place of installation. The results are displayed with the scale's accuracy.

Preparation
- Turn on the scale: press I/⏻
> The Sartorius logo is displayed
> The scale performs a self-test

- Select reproTEST in the Setup menu: press Setup
- Select the Scale menu: Menu soft key
- Select either reproTEST or Selection mode: see "Configuration"
- Exit the Setup menu: press << soft key

Check the Reproducibility of the Scale

Step	Key(s) (or instruction)	Display/Output
1. If reproTEST is set: and proceed with step 4.	isoTST soft key	
If Selection mode is set:	isoTST soft key	
2. Select reproTEST	Select soft key	
3. Start reproTEST	Start soft key	
4. Number of measurements is displayed; 6 measurements will now be performed		
The standard deviation is displayed		
5. End reproTEST or restart reproTEST	End soft key Start soft key	

⚠ **Using Verified Scales as Legal Measuring Instruments in the EU*:**
All application programs can be selected on scales used as legal measuring instruments. Calculated values, e.g., are indicated as follows:

- Percent = %
- Piece counting (Counting) = pcs
- Computed value = o, ⚠

Soft Key Functions

`Start` Start application program

`Weigh.` Toggle to basic weighing functions

Toggle between Weight Units R1 R2

Purpose
With this application program you can switch the display of a weight value back and forth between two weight units by pressing a soft key.

You can use this application program in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, net-total formulation, statistics) as well as with the extra functions.

Available Features

- Toggling the displayed weight
- Other features as for the basic weighing function

Factory Settings
Weight unit 1: `Grams /g`
Weight unit 2: `Kilograms /kg`

Preparation
Scales used as legal measuring instruments: grams and kilograms are the only weight units available

Standard scales: The following weight units are available in both ranges:

Unit	Conversion factor	Display/ Printout	Line for metrological data
Grams	1.00000000000	g	g
Kilograms	0.00100000000	kg	kg
Carats	5.00000000000	ct	ct
Pounds	0.00220462260	lb	lb
Ounces	0.03527396200	oz	oz
Troy ounces	0.03215074700	ozt	ozt
Hong Kong taels	0.02671725000	tlh	tlh
Singapore taels	0.02645544638	tls	tls
Taiwanese taels	0.02666666000	tlt	tlt
Grains	15.43235835000	GN	GN
Pennyweights	0.64301493100	dwt	dwt
Milligrams	1000.00000000000	mg	mg
Parts per pound	1.12876677120	/lb	lb
Chinese taels	0.02645547175	tlc	tlc
Mommes	0.26670000000	mom	M
Austrian carats	5.00000000000	K	K
Tola	0.08573333810	tol	tol
Baht	0.06578947437	bat	bat
Mesghal	0.21700000000	MS	MS

- Turn on the scale: press I/⏻
- Select the Toggle Weight Units application in the Setup menu: press Setup
- Select `Application parameters`: press the `v` soft key 2 ×, then the `>` soft key once
- `Application 1 (basic settings)`: press the `>` soft key
- Select `Toggle wt. units`: (repeatedly) press the `^` or `v` soft key
- Confirm `Toggle wt. units`: press the `>` soft key

  Toggle wt. units — Weight unit 1 ——— see above

  see also “Application Parameters (Overview)” in the chapter entitled “Configuration”

- Save settings and exit the Setup menu: press the `<<` soft key

* including the Signatories of the Agreement on the European Economic Area

Additional Functions
In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing (NUM print; S ID),

you can also access the following functions from this application:

Calibration/Adjustment
● Press the **isoTST** soft key
> See "Calibration/Adjustment" for further instructions

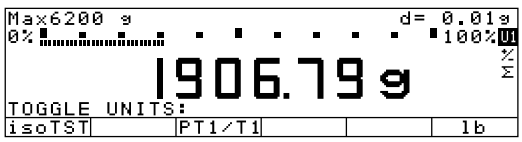
Toggling to the Next Application
● Press [⟲]
> See the section on the corresponding application program for further instructions

Setup (setting parameters)
● Press [Setup]
> See "Configuration" for further instructions

Turning Off the Scale
● Press [I/⏻]
> The scale shuts off

Practical Example
Toggle the Display From Grams [g] (1st Unit) to Pounds [lb] (2nd Unit)

Settings (changes in the factory settings required for this example):
Setup: App: Application 1: Toggle wt. units: Weight unit 2: Pounds/lb

Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary (**R1**: Weight unit 1)	[CF]	
2. Change weight unit to Pounds [lb] (**R2**: Weight unit 2)	**lb** soft key	
3. Change weight unit to Grams [g]	**g** soft key	

Counting

Purpose
With the Counting program you can determine the number of pieces of approximately equal weight.

You can use this application program in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application3 (totalizing, formulation, statistics) as well as with the extra functions.

Available Features
- Optional scale configuration in Setup for automatically initializing this application and loading the most recent reference sample quantity “nRef” and average piece weight “wRef” when you switch on the scale (this is the automatic setting when the scale is initialized; Setup menu: Application parameters: Auto-start app. when power goes on: On)
- Reference sample quantity “nRef” entered manually
- Average piece weight “wRef” entered manually
- Storage of the current weight value for the preset reference sample quantity “nRef”, to be loaded when the Counting program is initialized
- Setting the accuracy when the reference sample weight “wRef” is stored for calculating a piece count
- Automatic output of the quantity and sample weight via the data interface port after initialization or reference sample updating while running the Counting program (Select Setup: Printout: Application-defined: Auto print upon initialization: All values)
- Toggling between piece count and weight value by pressing the `Count.` or `Weigh.` soft key
- Toggling between counting and additional applications using the key (for example, checkweighing)

Factory Settings
Accuracy when calculating piece weight:
`Display accuracy`

Reference sample updating:
`Automatic`

Soft Key Functions

`nRef`	Store value input as reference sample quantity
`wRef`	Store input value as reference sample weight
`Opt.`	Reference updating criteria met; reference updating can be performed
`Count.`	Toggle to the Counting application
`Weigh.`	Toggle to the weighing mode
`Start`	Store current weight value for the preselected piece count

Counting

Preparation
To calculate a piece count, the average weight of one piece must be known.
This average piece weight can be entered into the Counting program in one of three ways:

- Enter the average piece weight using the numeric keys and store it;

- The last reference sample quantity entered is loaded and displayed when you turn on the scale. Place the same number of parts on the balance and initialize the Counting program;

- When the automatic initialization parameter (see previous page), is on (Setup: Printout: Application-defined: Autoprint upon initialization: All values; see page 34), the scale goes into the "counting" mode when you turn it on and loads the last average piece weight and corresponding reference sample quantity that were entered or calculated.

  Reference Sample Updating
  You can have the average piece weight updated during counting (with the piece count displayed) if "AWP update" is set to "manual" or "automatic" in the Setup menu.
  Manual updating can only be performed when the **Update** soft key is displayed.
  Reference sample updating must be completed before using an application program from Application 3.

  The **Opt.** soft key is displayed when:

- the scale has stabilized (stability symbol displayed)

- the current piece count is not more or less than double the original piece count

- the current piece count is more than 100

- the internally calculated piece count (e.g., 17.24) differs from the nearest whole number (in this case: 17) by less than ±0.3

  Reference updating can be repeated several times with an approximately doubled piece count.

○ To perform reference updating: press the **Opt.** soft key

○ Turn on the scale: press I/⏻

> Sartorius logo is displayed

● Select the Counting application in the Setup menu: press Setup
● Select the **Application parameters**: press the **v** key 2×, then the **>** soft key once
● Select **Application 1 (basic settings)**: press the **>** soft key
● Select **Counting**: repeatedly press the **^** or **v** soft key
● Confirm **Counting**: press the **>** soft key

- Counting
  - Average piece weight calculation
    - o Display accuracy
    - +1 decimal place
    - +2 decimal places
  - Average piece weight updating
    - Off
    - Manual
    - o Automatic

o = factory setting

see also the "Application Parameters (Overview)" in the chapter entitled "Configuration"

● Save settings and exit the Setup menu: press the **<<** soft key

Additional Functions
In addition to the functions for:
- alphanumeric input,
- taring (not during alphanumeric input),
- printing,

you can also access the following functions from this application:

Calibration/Adjustment
● Press the **isoTST** soft key
> See "Calibration/Adjustment" for further instructions

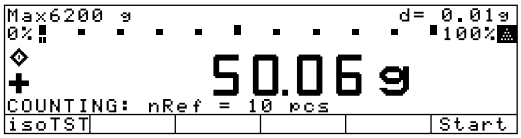
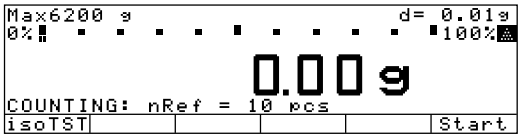
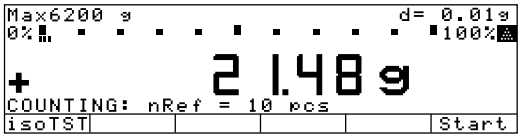
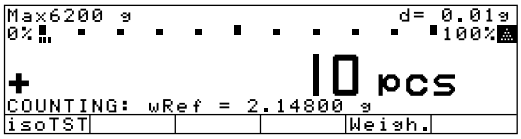
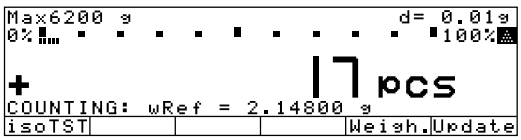
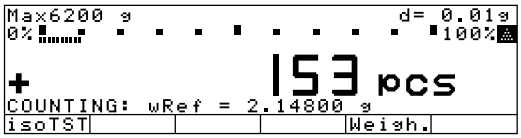
Toggling to the Next Application
● Press ID
> See the section on the corresponding application program for further instructions

Setup (Setting Parameters)
● Press Setup
> See "Configuration" for further instructions

Turning Off the Scale
● Press I/⏻
> The scale shuts off

Practical Example
Determining an Unknown Piece Count; Weighing in the Preset Reference Sample Quantity

Settings (changes in the factory settings required for this example):
Setup: Application parameters: Application 1: Counting: Average piece weight updating: Manual
Setup: Printout: Application defined: Auto print on init.: All values

Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary	CF	
2. Prepare a container for the parts to be counted	Place the empty container on the scale	
3. Tare the scale	Tare	
4. Place the reference sample quantity on the scale (example: 10 pcs)	Place the displayed number of parts in the container	
5. Determine the average piece weight (number of decimal places displayed depends on the scale model)	Start soft key	 nRef + 10 pcs wRef + 2.14800 g
6. If necessary, increase the number of parts and perform reference sample updating (example: 7 additional pieces)	Place additional parts in the container Update soft key	 nRef + 17 pcs wRef + 2.15800 g
7. Weigh uncounted parts	Place parts to be counted in the container	
8. If desired, print total piece count (here: 153 pcs)		Qnt + 153 pcs

Weighing in Percent %

Purpose
This application program allows you to obtain weight readouts in percent which are in proportion to a reference weight.

Alternatively, you can have the value displayed as a difference in percent between the weight on the scale and the reference weight, or as a special ratio1 or ratio2.

You can use the "Weighing in Percent" application in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics) as well as with the extra functions.

Available Features
- Reference percentage "pRef" loaded from long-term memory when you turn on the scale
- Optional scale configuration in Setup for automatically initializing this application and loading the most recent reference percentage "pRef" entered with reference weight "Wxx%" when you turn on the scale (Setup: App: Auto start application when power goes on: On).
- Value displayed as:
  - Residual quantity (portion)
  - Difference (deviation)
  - Ratio1
  - Ratio2

  depending on the selected Setup menu code.
- Reference percentage "pRef" entered manually
- Store the current weight as the reference percentage weight "Wxx%" for initializing the weighing-in-percent application program
- Reference weight "Wxx%" entered manually
- Storage parameter (rounding-off factor) for storing the reference weight "W100%" in percentage calculation can be configured
- Configuration of decimal places displayed with a percentage
- Optional configuration for having the reference weight "Wxx%" and reference percentage automatically output via the data interface port after initialization (print application parameters) (Select Setup: Printout: Application–defined: Auto print upon initialization: All values)
- Toggle the display between percentage and weight readout by pressing the **Weigh.** or **Perc.** soft key
- Toggle between the weighing-in-percent program and other applications (e.g., checkweighing) by pressing

Factory Settings
Storage parameter:
Display accuracy
Digits displayed with percentage:
2 digits
Display calculated value: **Residue**

Soft Key Functions

pRef	Store value input as reference percentage
Wxx%	Store input value as reference sample weight
Perc.	Toggle to the Weighing-in-percent application
Restar	Start next weighing operation
Weigh.	Toggle to the weighing mode
Start	Store current weight value for preselected percentage

Preparation
To calculate a value in percent, the reference percentage must be known. This value can be entered into the weighing-in-percent program in one of three ways:

- The last reference percentage entered is loaded and displayed when you turn on the scale. Place the corresponding weight on the balance and initialize the weighing-in-percent program.
- With automatic initialization switched on (Setup: App: Auto start application when power goes on: On), the scale goes into the "weighing in percent" mode when you turn it on and loads the last reference percentage entered as well as the corresponding reference weight.
- Enter the reference weight using the numeric keys and store it (`Wxx%` soft key).

● Turn on the scale: press I/⏻

> Sartorius logo is displayed

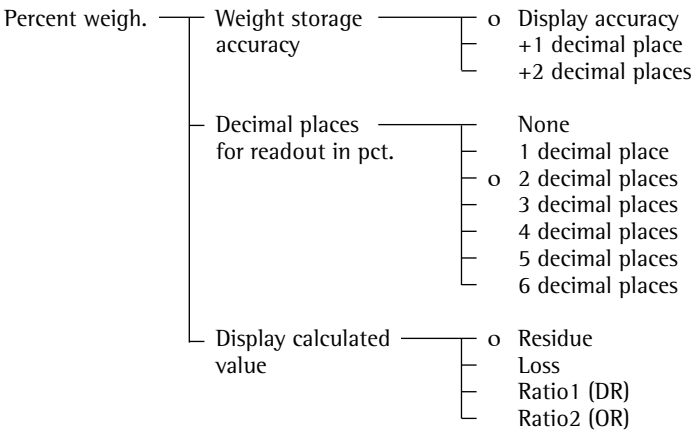
● Select the Weighing in percent application in the Setup menu: press Setup

● Select `Application parameters`: press the `v` soft key 2×, then the `>` soft key once

● Select `Application 1 (basic settings)`: press the `>` soft key

● Select `Percent weigh.`: repeatedly press the `^` or `v` soft key

● Confirm `Percent weigh.`: press the `>` soft key



o = factory setting

see also the "Application Parameters (Overview)" in the chapter entitled "Configuration"

● Save settings and exit the Setup menu: press the `<<` soft key

Equations
The following equations are used for the corresponding calculations:
Residue (weighing in percent) = Current weight / 100% weight x 100%
Loss (percent-DIFF:) = (Current weight – 100% weight) / 100% weight x 100%
Ratio1 (percent-Ratio 1:) = (100% weight – current weight) / current weight x 100%
Ratio2 (percent Ratio 2:) = 100% weight / current weight x 100%

Additional Functions
In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing,

you can also access the following functions from this application:

Calibration/Adjustment
● Press the `isoTST` soft key
> See "Calibration/Adjustment" for further instructions

Toggling to the Next Application
● Press ⇦⇨
> See the section on the corresponding application program for further instructions

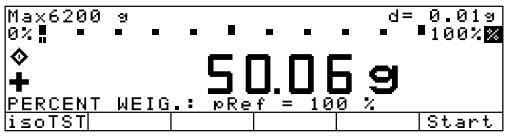
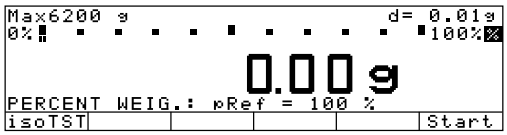
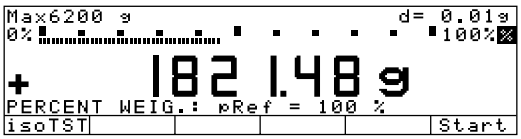
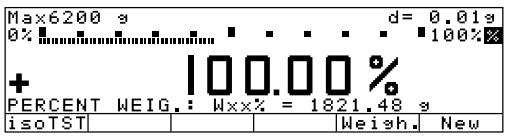
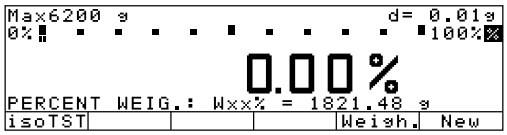
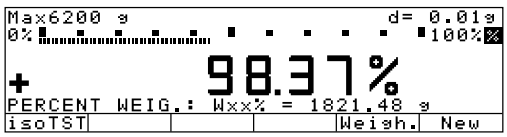
Setup (setting parameters)
● Press Setup
> See "Configuration" for further instructions

Turning Off the Scale
● Press I/⏻
> The scale shuts off

Weighing in Percent %

Examples
Practical Example: Weighing in Percent with Reference Weight Taken From Weight on Scale

Settings (changes in the factory settings required for this example):
Setup: Application parameters: Application 1: Weighing in percent
Setup: Printout: Application-defined: Auto print on init: All values

Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary	CF	
2. Prepare a container for the parts	Place the empty container on the scale	
3. Tare the scale	Tare	
4. Place the reference weight on the scale (here: 1821.48 g = 100%)	Place weight equal to reference weight in the container	
5. Initialize the scale	Start soft key	 pRef + 100 % Wxx% + 1821.48 g
6. Unload the scale sample from the container	Remove reference	
7. Determine the percentage of an unknown weight	Place sample to be measured in the container	
8. If desired, print percentage (here: 98.37%)	P	Prc + 98.37 %

Animal Weighing

Purpose
Use this program to determine the weights of unstable samples (e.g., live animals) or to determine weights under unstable ambient conditions. In this program, the scale calculates the weight as the average of a defined number of individual weighing operations. These weighing operations are also known as "subweighing operations."

You can use the "Animal Weighing" application in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics) as well as with the extra functions.

Available Features
- Animal weighing started manually or automatically
- Automatic start:
  - when a defined threshold has been exceeded (Minimum load threshold: 10; 20; ...; 500; 1,000 display increments)
  - when three successive subweights lie within a user-defined tolerance range (calm; normal; active; 0.1%; 0.2%; ...; 50%; 100% of the animal/object)
- Manual start:
  - also possible when the load is under the minimum load threshold
  - when three successive subweights lie within a user-defined tolerance range (calm; normal; active; 0.1.%; 0.2%; ...; 50%; 100% of the animal/object)
- Optional scale configuration in the Setup menu for automatically initializing this application when you turn on the scale
- Number of weighing operations for calculation of an average (`mDef`) can be entered before the beginning of each animal weighing operation
- The factor for calculation of the result can be entered before the beginning of each animal weighing operation
- The number of subweighs remaining to be performed is indicated in the text display during weighing
- Arithmetic average displayed as a result in the pre-set weight unit (identified by the ⚠ symbol).
- Optional multiplication of the arithmetic average by a user-defined factor `Mul`.

  A circle "o" is displayed as weight unit and `Mul = xxx` is shown in the text line
- Toggling between the animal weight and the calculated value by pressing the `xNet` soft key and the `xRes` soft key
- Automatic output of results via the interface port:
  - Number of weighing operations `mDef`
  - Multiplication factor `Mul`
- Automatic output of results (printout) via the interface port:
  - Weighing result `xNet`
  - Calculated result `xRes`

  The following options have to be selected: Setup: Printout: Application-defined: Auto print upon initialization: All values
- The unload threshold is equal to one-half the minimum scale capacity
- Return to weighing mode by unloading the scale; i.e., when the load is below the unload threshold

Factory Settings
Animal activity:
`5% of the animal/object`

Start: `Automatic`

Minimum load for automatic storage:
`100 display increments`

Decimal places in result display:
`2 decimal places`

Printout:
`Average weight only`

Soft Key Functions

`New` Automatic start:
- Unload scale and weigh next animal, if desired
- Press key to start next subweigh

Manual start:
Start next subweigh

`mDef` Store user-defined number of subweighs for averaging

`Mul` Store user-defined factor as multiplication factor for calculated the arithmetic mean

`xNet` Toggle to the animal weight

`xRes` Toggle to the calculated animal weighing result

Printout for Animal Weighing
Upon completion of the averaging process, you can have the results printed out automatically. You can also have both the weight and the calculated result printed.

```
mDef          10
Mul        0.347
xNet   +  153.00 g
xRes   +   53.91 o
```

mDef: Numbers of subweighing operations for averaging

Mul: Multiplication factor

xNet: Result of averaging

xRes: Calculated result

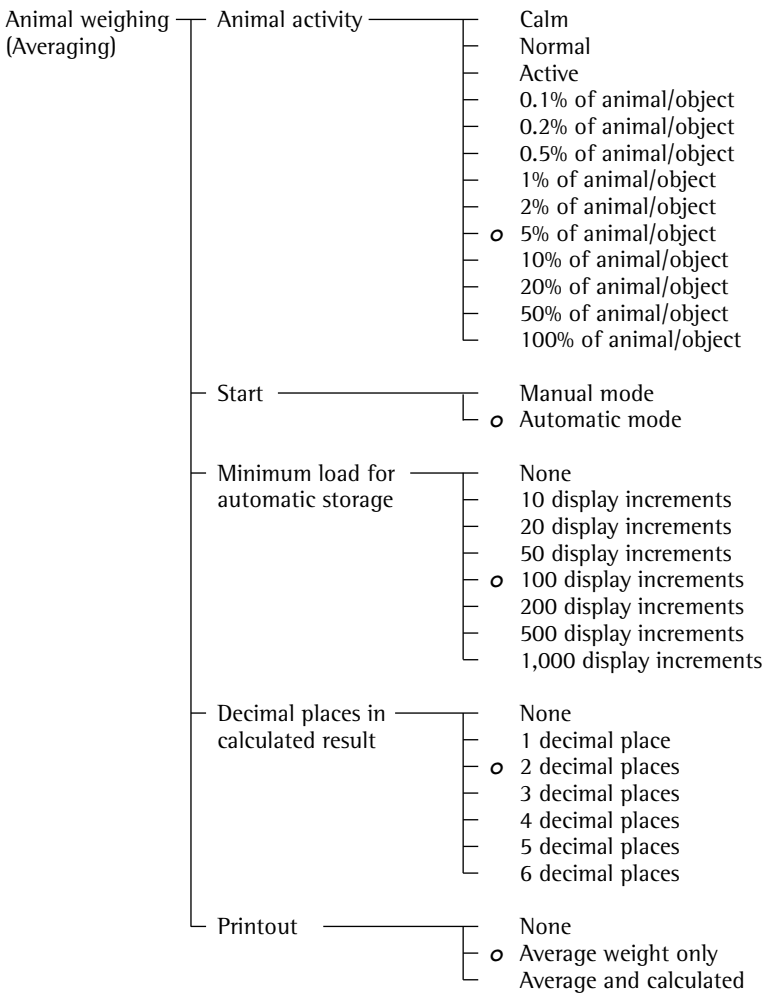
Animal Weighing

Preparation

- Turn on the scale: press I/⏻

> Sartorius logo is displayed

- Select the Animal weighing application in the Setup menu: press Setup
- Select `Application parameters`: press the `v` soft key 2 ×, then the `>` soft key once
- Select `Application 1 (basic settings)`: press the `>` soft key
- Select `Animal weigh.`: `^` or `v` soft key repeatedly
- Confirm `Animal weigh.`: `>` soft key



o = factory setting

see also the “Application Menu (Overview)” in the chapter entitled “Configuration”

- Save settings and exit the Setup menu: Press the `<<` soft key

Additional Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input),

– printing,

you can also access the following functions from this application:

Calibration/Adjustment

- Press the `isoTST` soft key

> See “Calibration/Adjustment” for further instructions

Toggling to the Next Application

- Press ⏻

> See the section on the corresponding application program for further instructions

Setup (setting parameters)

- Press Setup

> See “Configuration” for further instructions

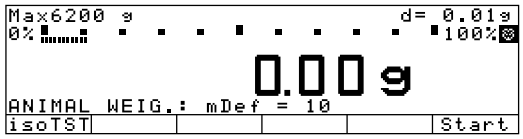
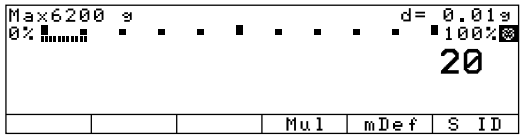
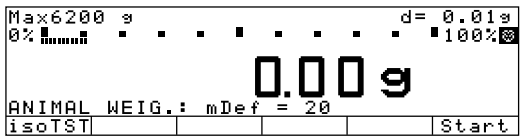
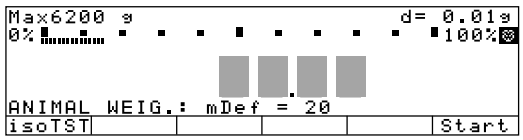
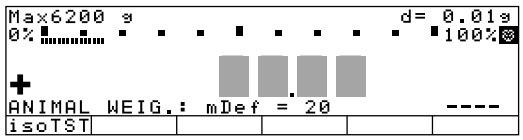
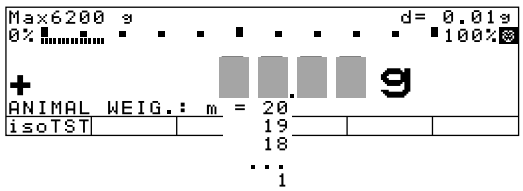
Turning Off the Scale

- Press I/⏻

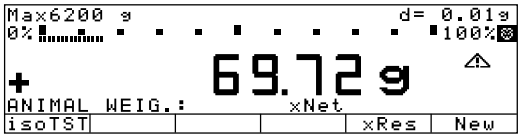
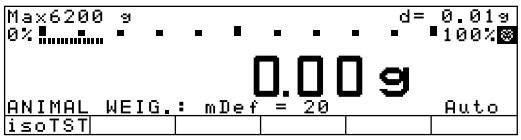
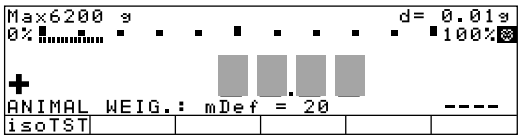
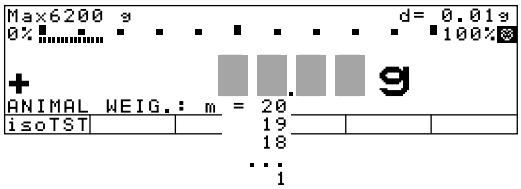
> The scale shuts off

Practical Example
Determining Animal Weight With Automatic Start of 20 Subweighing Operations for Averaging;
Automatic Printout of the Number of Subweighing Operations and of the Animal Weight

Settings (changes in the factory settings required for this example):
Setup: Application parameters: Application 1: Animal weighing: Animal activity: Active
Setup: Application parameters: Application 1: Animal weighing: Printout: Average and calculated values
Setup: Printout: Application-defined: Auto print upon initialization: All values

Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary	CF	
2. Prepare a container (cage)	Place empty cage on the scale	
3. Tare the scale	Tare	
4. Enter number of subweighing operations for averaging	2 0	
5. Save number	**mDef** soft key	
6. Weigh the first animal	Place 1st animal in cage	weight value fluctuates due to animal activity 
7. Start automatic animal weighing	**Start** soft key	
The scale delays starting the subweighing operation until three successive subweights lie within the range defined for an “active” animal	When this criterion is met, the subweighing series begins	

Animal Weighing

Step	Key (or instruction)	Display/Output
After 20 subweighing operations the arithmetic average (xNet) is display		
(**mDef:** no. of subweighs **Mul:** calculation factor **xNet:** arithm. average, net value **xRes:** calculated value)		mDef 20 Mul 1 xNet + 69.72 g xRes + 69.72 o
8. Unload the scale	Remove animal from cage	
9. If desired, weigh next animal	Place animal in cage	
Next weighing series begins automatically		

Recalculation

Purpose
With this application program you can compensate for over-poured components in formulation.

If a component is over-poured when weighing in the individual formulation components, the mixture already poured cannot be used in its current composition. To avoid having to discard the materials weighed, you can adjust the proportions of the formulation to compensate for the over-pour.

When you use this application, the recalculation procedure is mainly performed by the scale.

You can use the "Recalculation" application in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics) as well as with the extra functions.

Available Features

- Individual components (up to 99) weighed in with a readout showing from "0" to the desired component weight
- Transaction counter shows the next component expected
- Weighed components are stored, followed by automatic printout and taring
- Additive weighing of components with printout
- Toggle the display between component weight and total formulation weight (additive mode) after first component is stored
- Stored component weight displayed as true net weight for 2 seconds
- Enter a divisor before or during component weighing. For example, if the formulation has a total weight of 100 g, enter the divisor 10 to weigh in a total formulation of 1,000 g.
- If a component is over-poured, you can use the recalculation function to change the amount of this component indicated in the formulation by using plus or minus keys or numeric input. The scale calculates a factor by which all other component amounts will then be adjusted according to the desired component value.
- Recalculation factor displayed in the text line, with a warning symbol if the factor is not equal to 1.
- All components displayed with number and the amount (by weight) to be added in follow-on filling. Components displayed in sequence by the scale.
- Display of actual net weight during follow-on filling
- After the amounts of the components already weighed have been corrected, weighing continues according to the adjusted formulation amount. The readout is recalculated (updated) according to the divisor.
- You can repeat the over-pour correction procedure as often as necessary, in case other components are over-poured.
- After follow-on (corrective) filling, the total amount differs from that given for the formulation, but the proportion of components in relation to each other is the same.
- You can have the weight printed after each measurement
- Individual component weights are printed as "Compxx."
- Press CF to exit the application program. The component memory is cleared and the sum of components printed as "S-Comp."
- Toggle between the recalculation program and other applications (e.g., checkweighing) by pressing ⏲.

Recalculation

Factory Settings
Print application parameters (automatic output of application parameters):
`all values`

Printout configuration:
Line format: `for other apps/GLP` (22 characters)

Soft Key Functions

`Comp.xx`	Store component
`Add.xx`	Store component in additive weighing mode
`Div.`	Store divisor before or during component weighing
`Recalc`	Start correction procedure for recalculation
`→Add./`	Toggle display between
`→Comp.`	component weight and total weight (additive mode)
`Comp.`	Store numeric input for recalculation
`Minus`	Set value given for the formulation
`Plus`	Set value given for the formulation

Preparation
- Turn on the scale: press I/⏻
> Sartorius logo is displayed

- Select the Recalculation application in the Setup menu: press Setup
- Select `Calculation`: press the ^ or v soft key, repeatedly, if neccessary
- Confirm `Calculation`: press the > soft key
- Select `Recalculation`: press the ^ or v soft key, repeatedly, if neccessary
- Confirm `Recalculation`: press the < soft key
- Save settings and exit the Setup menu: press the << soft key

Additional Functions
In addition to the functions for:
– alphanumeric input,
– taring (not during alphanumeric input), and
– printing,

you can also access the following functions from this application:

Calibration/Adjustment
- Press the `isoTST` soft key
> See “Calibration/Adjustment” for further instructions

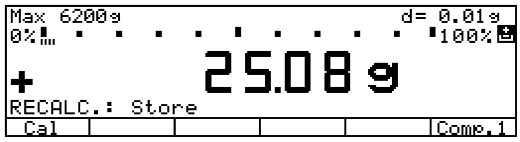
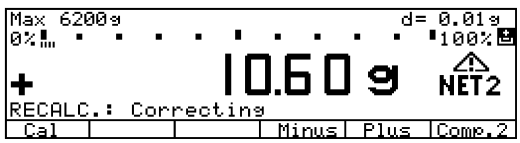
Toggling to the Next Application
- Press ☜
> See the section on the corresponding application program for further instructions

Setup (setting parameters)
- Press Setup
> See “Configuration” for further instructions

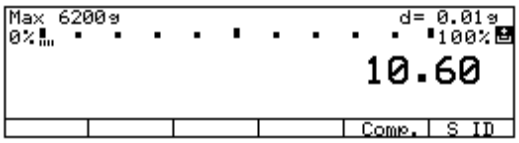
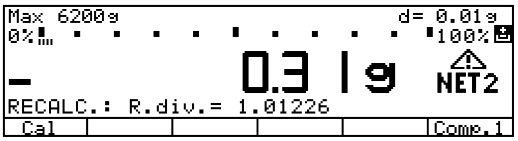
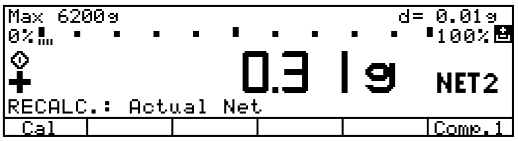
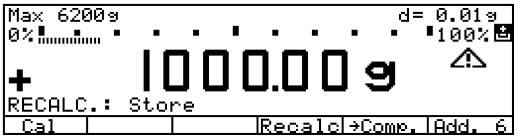
Turning Off the Scale
- Press I/⏻
> The scale shuts off

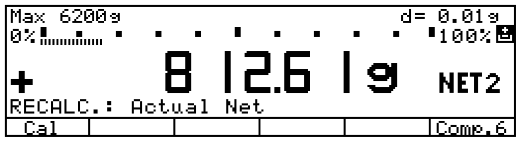
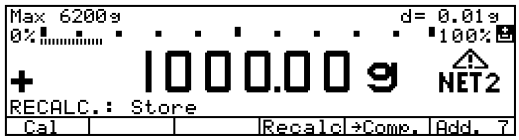
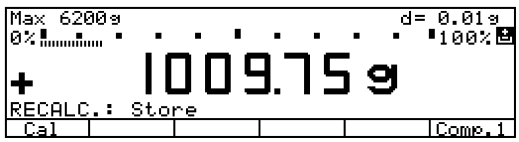
Practical Example
When weighing in formulation components, the second component is over-poured.

Settings (changes in the factory settings required for this example):
Setup: Application parameters: Application 1: Recalculation

Step	Key (or instruction)	Display/Output
1. Delete previously stored values, if necessary	CF	
2. Place container for filling components on the scale	Place empty container on the scale	
3. Tare	Tare	
4. Add the first component	Weigh the first component into the container	
5. Store component	Press the Comp.1	Comp1 + 25.08 g
6. Add the second component	Weigh the second component into the container	
7. Start recalculation, because 10.73 g were poured rather than 10.60 g	Recalc soft key	
8. Either press the minus key to correct the value ...	Minus soft key repeatedly	

Recalculation

Step	Key (or instruction)	Display/Output
... or enter the desired value	1 0 · 6 0	
9. Confirm the new value	**Comp.** soft key	Comp1 + 25.08 g Comp2 + 12.42 g RekD + 1.01226
Follow-on filling amount for first component is displayed		
10. Follow-on filling of 1st component	Weigh the first component up to 0	
and store	**Comp.1** soft key	Comp1 + 25.08 g Comp2 + 10.73 g RekD + 1.01226 RCom1 + 25.39 g
The true net value is displayed for 2 seconds		
11. Weigh in further components, if called for in the formulation	Repeat steps 4 and 5 as needed	
12. Toggle to the additive mode, if required	**→Add.** soft key	
13. Add further components, as required ... (here, e.g., up to the total weight of the formulation:1,000 g)	Add components to container	

Step	Key (or instruction)	Display/Output
14. ... and store (here, e.g., the 6th component)	**Add.6** soft key	Comp1 + 25.08 g Comp2 + 10.73 g RekD + 1.01226 RCom1 + 25.39 g Comp3 + 22.03 g Comp4 + 31.49 g Comp5 + 107.50 g Comp6 + 812.61 g
The true net value (of the 6th component) is displayed for 2 seconds		
Then the total weight is displayed		
15. End the weighing procedure Total weight is printed	CF	Comp1 + 25.08 g Comp2 + 10.73 g RekD + 1.01226 RCom1 + 25.39 g Comp3 + 22.03 g Comp4 + 31.49 g Comp5 + 107.50 g Comp6 + 812.61 g S-Comp+ 1009.75 g
Total weight is displayed Component memory is cleared		

Calculation ±

Purpose
With this application program you can calculate a weight value using an algebraic equation. This can be used, for example, to determine the gsm weight (grams per square meter) of paper.

You can use the "Calculation" application in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics) as well as the extra functions.

Available Features
- You can store an equation and configure the Setup menu to initialize this program automatically with the stored equation (Setup: App: Basic settings : Auto start upon initialization: On)
- The o symbol is displayed to indicate a calculated vale. The equation used is displayed in the text line
- If no equation was entered, the weight value is displayed
- Toggle between the weight readout, equation input and display of the calculated result by pressing the corresponding soft keys (or press CF to toggle between weight and calculated value)
- The are four operators (+, –, *, /) and one factor (weight value) available when you enter an equation
- Max. equation length: 28 characters
- Pressing CF will delete either the equation or the last character entered, depending on the configuration in the Setup menu (Setup: Device: Keys: CF function for input: Delete last character)
- The calculated result is displayed with the number of decimal places configured in the Setup menu. Not all decimal places are displayed if the result is longer than the display allows. If there are more digits before the decimal point than the display can show, an error message is displayed.
- The equation is stored in non-volatile memory

Factory Settings
Decimal places in calculated result:
`2 decimal places`

Soft Key Functions

`Equat.`	Toggle to equation
`+`	Enter an addition operator in the equation
`–`	Enter a subtraction operator in the equation
`*`	Enter a multiplication operator in the equation
`/`	Enter a division operator in the equation
`Weight`	Enter a weight value in the equation
`Start`	Start calculation
`Weigh.`	Toggle to the weighing mode

Printout for Calculation
The calculation result is printed.

```
Res    +   693.88 o
```

Res: Result of calculation with equation

Additional Functions
In addition to the functions for:
- alphanumeric input,
- taring (not during alphanumeric input),
- printing,

you can also access the following functions from this application:

Calibration/Adjustment
● Press the `isoTST` soft key
> See "Calibration/Adjustment" for further instructions

Toggling to the Next Application
● Press [D]/[TOGGLE]
> See the section on the corresponding application program for further instructions

Setup (setting parameters)
● Press Setup
> See "Configuration" for further instructions

Turning Off the Scale
● Press I/⏻
> The scale shuts off

Preparation
● Turn on the scale: press I/⏻

> Sartorius logo is displayed

● Select the Calculation application program in the Setup menu: press Setup

● Select the `Application parameters`: press the `v` soft key 2 ×, then the `>` soft key once

● Select `Application 1 (basic settings)`: press the `>` soft key

● Select `Calculation`: press the `^` or `v` soft key, repeatedly, if necessary

● Confirm `Calculation`: press the `>` soft key

Calculation ——— Decimal places in calculated result
- None
- 1 decimal place
- o 2 decimal places
- 3 decimal places
- 4 decimal places
- 5 decimal places
- 6 decimal places

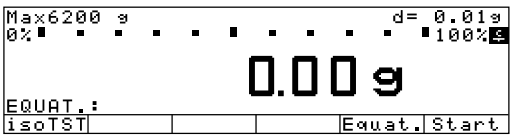
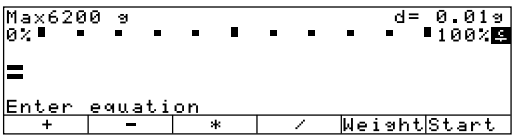
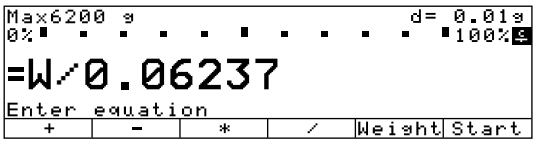
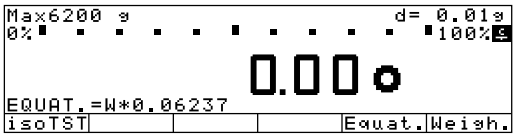
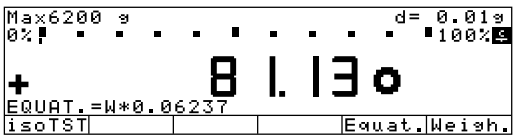
o = factory setting

see also the "Application Parameters (Overview)" in the chapter entitled "Configuration"

● Save settings and exit the Setup menu: press the `<<` soft key

Practical Example
Calculate the gsm weight of paper: determine the gsm of a sheet of A4 paper with the dimensions 0.210 m × 0.297 m = 0.06237 m^2. The gsm weight is a product of the division of the weight by the surface area.

Settings (changes in the factory settings required for this example):
Setup: Application parameters: Application 1: Calculation

Step	Key (or instruction)	Display/Output
1. Turn on the scale and configure the settings as indicated above	I/⏻	
2. Delete previous setting if necessary	CF	
3. Tare the scale	Tare	
4. Select equation input	Equat. soft key	
5. Enter weight value Enter division sign Enter the surface area of a sheet of A4 paper	Weight soft key / soft key · 0 6 2 3 7	
6. Turn on the calculated result display	Start soft key	
7. Determine the gsm weight	Place A4 sheet on the scale	

Checkweighing %

Purpose
This program is used to check whether a sample corresponds to a pre-set target value or is within a specific tolerance range. In addition to the display in the measured value line, the results are shown on the bar graph and can also be routed through the interface port via control lines for further electronic processing.

You can use the "Checkweighing" application in combination with a program chosen from Application 1 (e.g., counting, weighing in percent) and one from Application 3 (totalizing, formulation, statistics).

Available Features

- Optional configuration in the Setup menu for long-term storage of target value and tolerance limits
- Optional scale configuration in Setup for automatically initializing this application and loading the values stored in long term memory for the target value and the upper and lower tolerance limits when you turn on the scale
- You can perform checkweighing
  - without entering a target value, but only upper and lower tolerance limits;
  - as differential checkweighing;
  - with symmetric or asymmetric limits which can be entered as percentages
- Enter target value and limits by placing a load on the scale or using the numeric keys
- Control in entering target and tolerance values, so that the upper limit ≥ the target ≥ the lower limit ≥ 1 display increment
- Accuracy of a weight readout or keyboard input as target/tolerance values corresponds to the display accuracy
- Optional scale configuration in the Setup menu for automatic output to the interface port (print application parameters) of target value and tolerance limits when initialization is completed
- Control range for the scale's data output port lines is 30% to 170% of the target value
- Optional configuration in the Setup menu for activation of control lines dependent on weight value (weight value within control range, stability reached)
- Toggling the display between weight readout and control (checkweighing) display by pressing the corresponding soft key. If the weight value exceeds tolerances, the measured value line shows the weight while the control display shows "LL" for "too low" or "HH" for "too high."
- Press the `Show` soft key to display target value and tolerance limits in the text line after initializing the application.
- Weight value in bar graph displayed in relation to upper and lower limits and target value.
- "OK" value counter displayed in the text line (e.g., `n = 4`). This counter shows the number of measured values that lie within the tolerance range.
- Optional automatic printout of weight value when it is within the control range at stability

  After an automatic printout, the scale is blocked. Before you can generate the next printout, you must unblock the scale by unloading it (weight must be under 30% of the target) or by placing a load on the scale (bringing the weight up to at least 170% of the target).
- Press CF to delete the initialization parameters and end the Checkweighing program

Factory Settings
Activation of port lines: `Within checkweighing range`

Type of checkweighing input: `Target, minimum, maximum weight`

Weight display mode: `Absolute value`

Automatic printout of OK values: `No`

Soft Key Functions

`Param.`	Begin input of target and tolerance values
`Show`	Display target and tolerance values in turn during checkweighing
`LLHH`	Toggle to control display ("LL" for too light and HH" for too heavy)
`Diff.`	Display difference between current value and target
`Net`	Display net weight

Preparation
The checkweighing program often requires a target value for comparison with the current value. This target has a tolerance range, which is defined by absolute weight values. The tolerance range is defined as either an absolute value or a percentage with upper and lower limits. Percentage values can be symmetric or asymmetric to the target value. These values can be entered either by storing weights on the scale or by key input.

There are four control lines, called data output port lines, which are activated as follows: (see also the diagram at the right):

- lighter
- equal
- heavier
- set

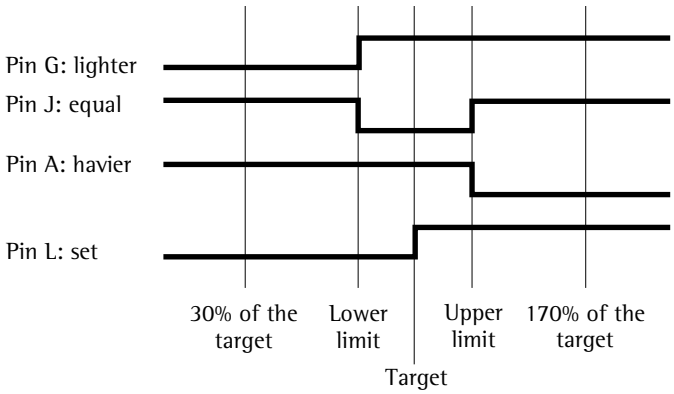
The control range spans 30% to 170% of the target value. You can configure this parameter in the Setup menu (App: Application 2: Checkweighing: Activation of port lines:) to select whether the control lines are:

- activated within the control range
- always on
- activated at stability within the control range
- activated at stability

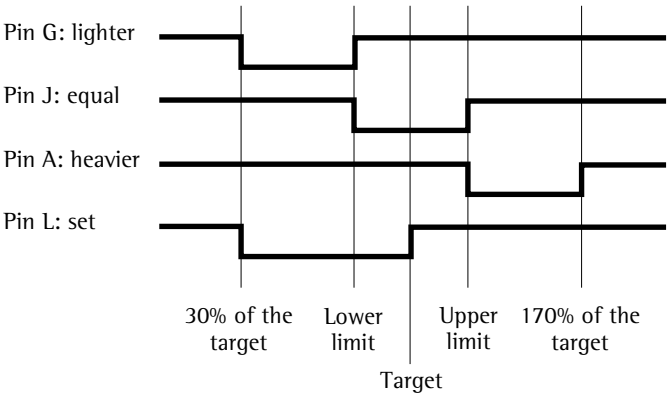
This makes it possible, for example, to connect a simple indicator for the weighing results (e.g., three different colors, one each for the weighing results: too light, O.K., too heavy).

Response of Control Lines During Checkweighing

Configurations:
- always on
- activated at stability



Configurations:
- activated within control range
- activated at stability within control range



Output port specifications
- When not in use, the voltage level is high: >2.4 V/+2 mA.
- When activated, the voltage level is low: <0.4 V/–2 mA.

⚠ The output ports are not protected against short circuits!

Checkweighing %

Preparation

● Turn on the scale: press I/⏻

> Sartorius logo is displayed

● Select the Checkweighing application in the Setup menu: press Setup

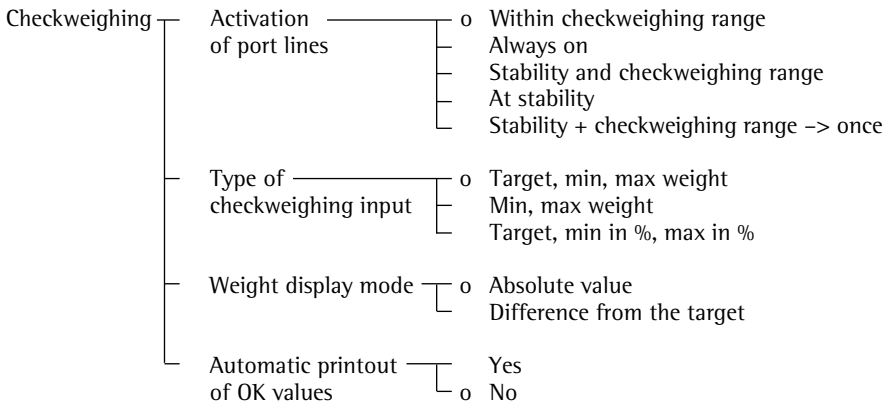
● Select Application 2: press the v soft key and then the > soft key

● Select the Application parameters: press the v soft key 2 ×, then the > soft key

● Select Application 2 (control functions): press the v soft key, then the > soft ke

● Select Checkweighing: press the ^ or v soft key, repeatedly, if necessary

● Confirm Checkweighing: press the > soft key



o = factory setting

see also the “Application Parameters (Overview)” in the chapter entitled “Configuration”

● Save settings and exit the Setup menu: press the << soft key

Additional Functions

In addition to the functions for:

– alphanumeric input, (not during initialization),

– taring (not during alphanumeric input)

– printing,

you can also access the following functions from this application:

Calibration/Adjustment

● Press the isoTST soft key

> See “Calibration/Adjustment” for further instructions

Toggling to Another Application

● Press ⏻

> See the section on the corresponding application program for further instructions

Setup (Setting Parameters)

● Press Setup

> See “Configuration” for further instructions

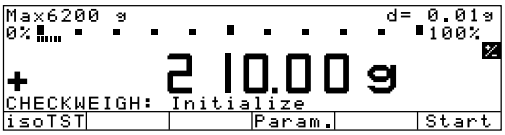
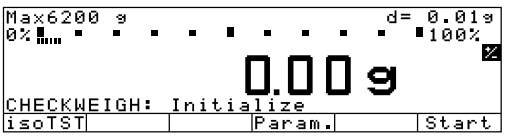
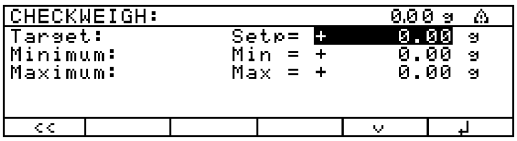
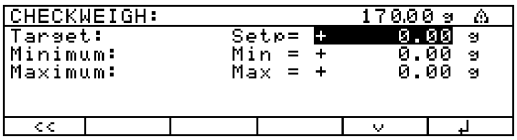
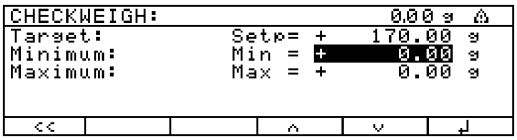
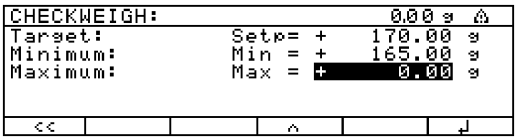
Turning Off the Scale

● Press I/⏻

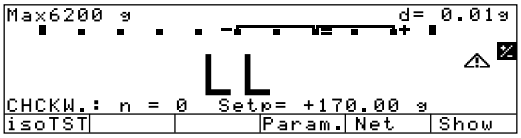
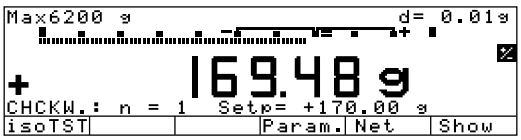
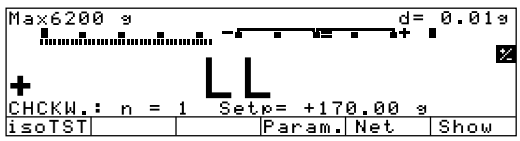
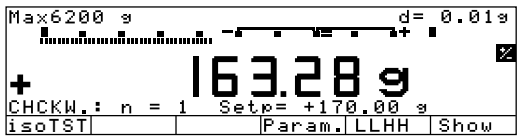
> The scale shuts off

Practical Example
Checkweighing samples of 170 g, with an allowable tolerance of –5 g and +10 g. Printout of upper and lower tolerance limits. Weighed values are printed out automatically when stability is reached and weight value is within the control range.

Settings (changes in the factory settings required for this example):
Setup: Application parameters: Application 2: Checkweighing: Automatic printout of OK values: Yes

Step	Key (or instruction)	Display/Output
1. Turn on the scale and configure the settings as indicated above	I/⏻	
2. Delete previous setting if necessary	CF	
3. Prepare a container for the samples	Place empty container on the scale	
4. Tare the scale	Tare	
5. Enter initialization values	Param. soft key	
6. Enter target value via the scale (here: 170 g)	Place ideal sample in container	
7. Store target value and unload scale	↵ soft key Remove ideal sample from scale	
8. Enter value for lower limit (170 g – 5 g) and store	1 6 5 ↵ soft key	

Checkweighing

Step	Key (or instruction)	Display/Output
9. Enter value for upper limit (170 g + 10 g) and store	1 8 0 ↵ soft key	 Setp + 170.00 g Min + 165.00 g Max + 180.00 g
10. Weigh sample (in this case 169.48 g)	Place sample in container	 N + 169.48 g
If the weight value had been too low, the display would have shown the following:		
11. In this case, switch to net value display (here: 163.28 g)	**Net** soft key	
12. Weigh next sample (if any)	Place sample in container	

Time-Controlled Functions

Purpose
With this application program, you can configure the scale to perform certain functions (e.g., automatic printout of values, store value in totalization memory) at a given time or after a set interval.

You can use the "Time-Controlled Functions" application in combination with a program chosen from Application 1 (e.g., counting, weighing in percent) and one from Application 3 (e.g., totalizing, formulation).

Available Features
- Time-controlled activation of scale functions:
  - one time only, at a given time

    (`Setting=` is displayed in the text line)
  - repeatedly, at given intervals

    (`Interval=` is displayed in the text line before the function is started, and
    `Repeat=` is displayed after the function is started)

  Functions that can be time-controlled include:
  - Acoustic signal
  - Lock in readout
  - Automatic printout of values
  - Store values for totalizing, formulation or statistics
- Print time in addition to weight value
- Store value independent of stability
- Tare the scale after printout of weight values
- Press the corresponding soft key to cancel time-controlled functions

Factory Settings
Function after time interval:
`Automatic printout of values`

Automatic function restart: `On`

Storage mode:
`Without stability`

Print then tare: `On`

Soft Key Functions

`Stop`	Stop the application
`Quit`	Confirm performed function (e.g., "Lock in readout" or "Beep")
`Interv`	Store input interval for time-controlled functions
`Set.`	Store input time for one-time performance of function

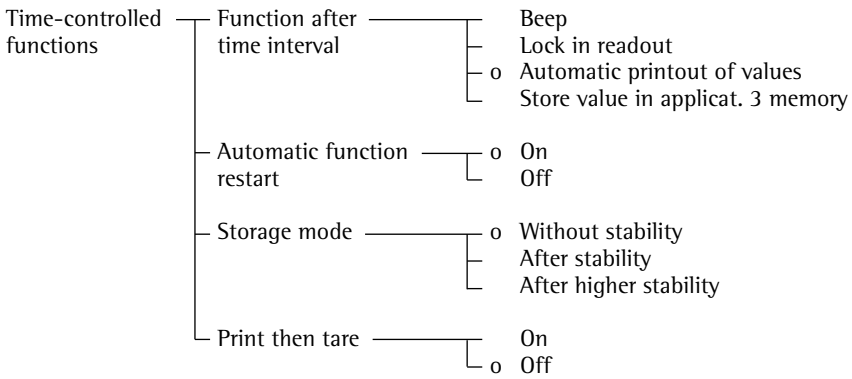
Printout for Time-Controlled Functions
If the "Automatic printout of values" parameter is set, the time and weight (or other value) are printed out.

```
Time:          10:15:00
N       +    150.00 g
```

Time:	Time that the values were stored
N:	Net weight

Preparation
- Turn on the scale: press I/⏻
> The Sartorius logo is displayed

- Select the "Time-controlled functions" application in the Setup menu: press Setup
- Select the `Application parameters`: press the `v` key 2×, then the `>` soft key
- Select `Application 2 (control functions)`: press the `v` soft key, then the `>` soft key
- Select `Time-controlled functions`: press the `^` or `v` soft key
- Confirm `Time-controlled functions`: press the `>` soft key



o = factory setting

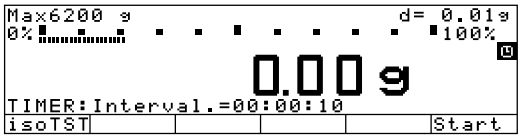
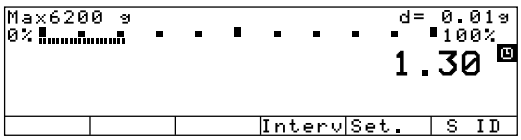
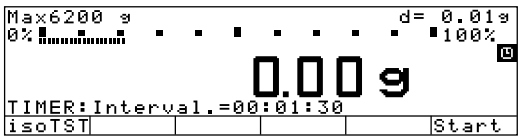
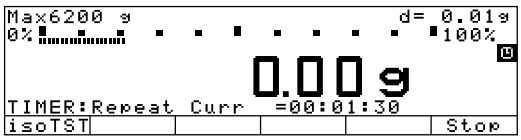
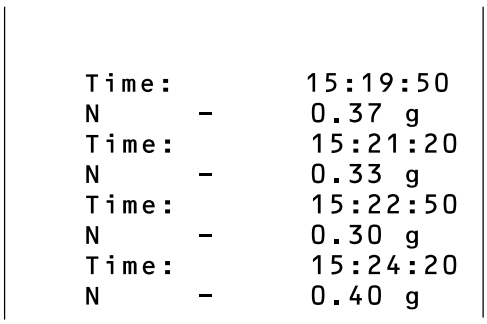
see also the "Application Parameters (Overview)" in the chapter entitled "Configuration"

- Save settings and exit the Setup menu: press the `<<` soft key

Print Net Values without Printout of Time
Select the Setup menu:
Setup: Printout: Application-defined output: Auto print upon initialization: Off

Practical Example
Document the amount of evaporation of a sample with defined surface, temperature and air pressure at preset intervals of 1 minute, 30 seconds.

Settings (changes in the factory settings required for this example):
Setup: Application parameters: Application 2: Time-controlled functions
Setup: Menu: Scale functions: Taring: Without stability
Setup: Menu: Print in weighing mode: Manual/auto print mode: Manual without stability

Step	Key (or instruction)	Display/Output
1. Turn on the scale and configure the settings as indicated above	I/⏻	
2. Delete stored values if necessary	CF	
3. Place container with sample on the scale and tare	Tare	
4. Enter time interval: 1 minute, 30 seconds	1 · 3 0	
5. Store time interval	**Interv** soft key	
6. Begin documentation (Time remaining until the next printout is displayed in the text line)	**Start** soft key	
Printout of evaporation amount every 1½ minutes		
7. Stop the documentation procedure	**Stop** soft key	

Totalizing Σ

Purpose
This application program acts as a cumulative memory function.

You can use the "Totalizing" application in combination with a program chosen from Application 1 (e.g., counting, weighing in percent) and one from Application 2 (checkweighing, time-controlled functions) as well as with the extra functions.

Available Features
- Totalization of weight values and calculated values
- Optional configuration in the Setup menu for simultaneous storage of net and calculated values
- Optional configuration in the Setup menu for loading weight values and calculated values either from Application 1 (e.g., counting, weighing in percent) or from Application 2 (checkweighing, time-controlled functions)
- Totalization memory for up to 65535 values
- Simultaneous display in the text line of transaction counter and, e.g., the current total
- Optional configuration in the Setup menu for having the scale tare automatically after a value is stored in the totalization memory, if no preset tare has been entered
- Manual input of the number of individual weighing operations (target no. of operation `nDef`). Result printed and memory cleared after printout of `nDef`.
- Optional configuration in the Setup menu to add the current weight, with display accuracy, to the current total by pressing the `M+` soft key and generate a printout of the result
- Optional configuration in the Setup menu for stability-dependent storage of the measured value: `Stability range`
- Optional automatic storage of measured values

  Storage of measured value is indicated by →←.
  ↓↓ indicates that you can place a load on the balance.
- Minimum load threshold for automatic storage
- Press the `M-` soft key to delete the last value added to the totalization memory. The transaction counter value is reduced by one and a printout is generated.
- Press the `MR` soft key for information about number of transactions and the current total. By configuring the Setup menu, you can define whether the information is displayed and printed, or only printed, and whether the information comprises an intermediate or final evaluation (see the example)
- In the Info window you can choose which value is displayed in the text line during weighing
- Printout of the end result independent of which program is configured for Application 1 or Application 2. Configure the Setup menu to define which values are included on the printout (Printout of individual components)
- Press the key identified by `MR` (soft key label) for a printout of an intermediate evaluation after each addition or a final evaluation
- If you end the totalization process by pressing CF without having first pressed the `MR` soft key for a printout, a final evaluation is printed when you press CF
- Optional configuration in the Setup menu to clear the totalization memory and reset the transaction counter by pressing CF or after an evaluation is printed out
- Totalization data and transaction counter data are stored in non-volatile memory
- Continue totalization after turning the scale off and back on

Factory Settings
Automatic storage: `Off`

Minimum load for automatic storage:
`20 digits`

Source of data for auto storage:
`Application 1`

Evaluated values: `Net`

Evaluation mode, MR key function:
`Intermediate evaluation, print`

M+/M– function, then tare: `Off`

Printout of individual components: `On`

Scale functions: Stability range:
`2 digits`

Printout: Application-defined output:
Print on request, then tare: `Off`

Soft Key Functions

`M+`	Add weight values or application values to the total in the totalization memory. The component or transaction counter value increases by one each time you press this key.
`M-`	Delete the last value added to memory. The transaction counter value decreases by 1. You cannot delete previous values by repeatedly pressing this key.
`MR`	Print or display an intermediate or final evaluation
`nDef`	Store the input number of components

Printout for Totalizing
The transaction or component counter is printed in front of each measured value (weight). When an intermediate or final evaluation is printed out, all results up to this point are included.

```
n                5
Total + 151.67 g
```

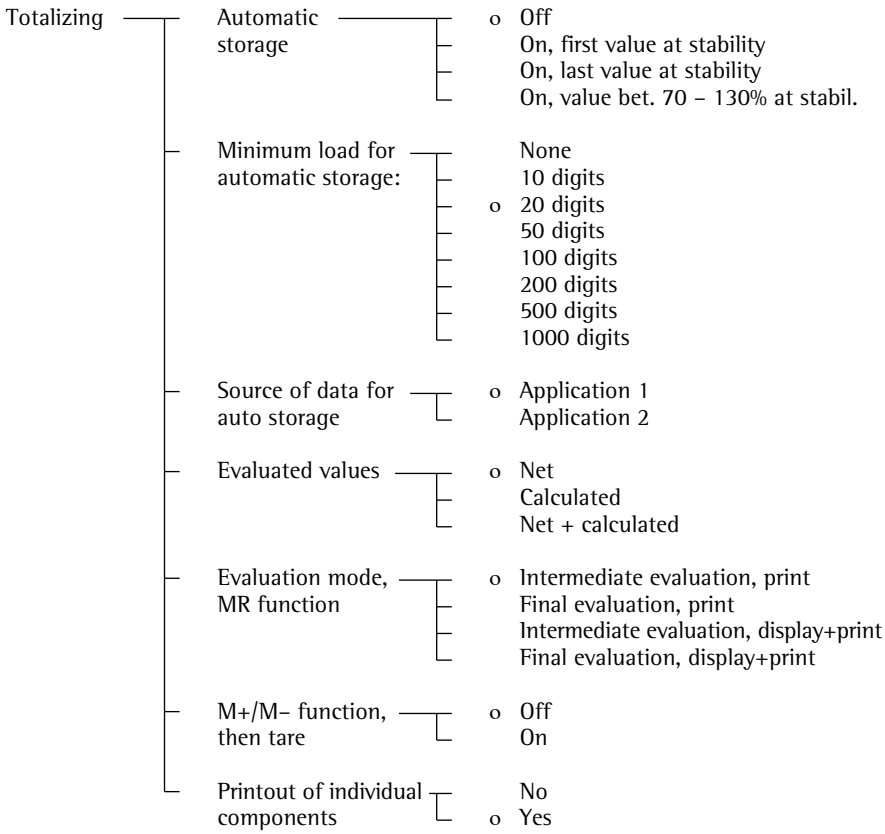
Totalizing Σ

Preparation

- Turn on the scale: press I/⏻

> Sartorius logo is displayed

- Select the Totalizing application program in the Setup menu: press Setup
- Select the **Application parameters**: press the **v** soft key 2 ×, then the **>** soft key
- Select **Totalizing**: press the **^** or the **v** soft key
- Select **Totalizing**: press the **>** soft key



o = factory setting

see also the “Application Parameters (Overview)” in the chapter entitled “Configuration”

- Save settings and exit the Setup menu: press the **<<** soft key

Additional Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input),

– printing,

you can also access the following functions from this application:

Calibration/Adjustment

- Press the **isoTST** soft key

> See “Calibration/Adjustment” for further instructions

Toggling to Another Application

- Press ⏻

> See the section on the corresponding application program for further instructions

Setup (Setting Parameters)

- Press Setup

> See “Configuration” for further instructions

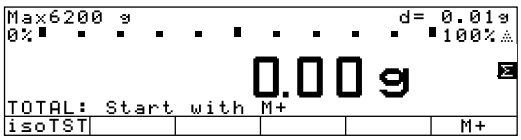
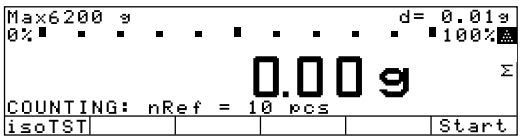
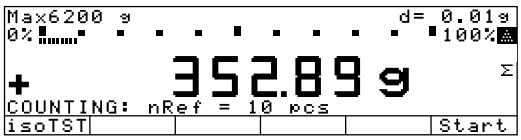
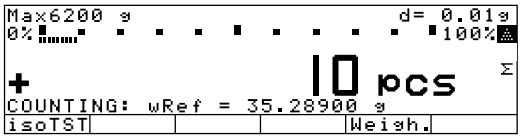
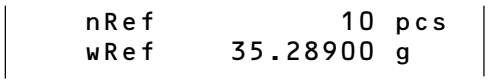
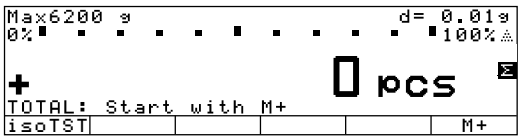
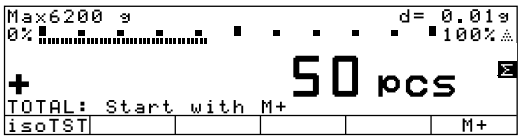
Turning Off the Scale

- Press I/⏻

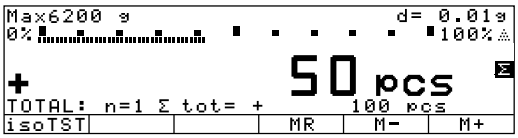
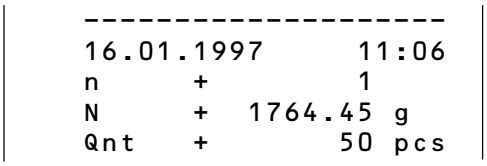
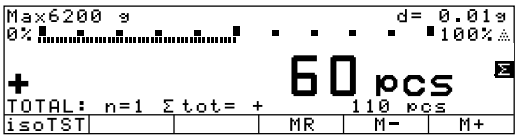
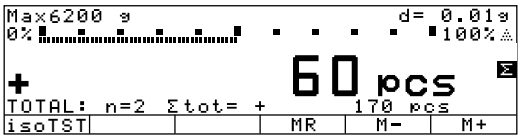
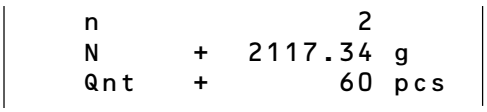
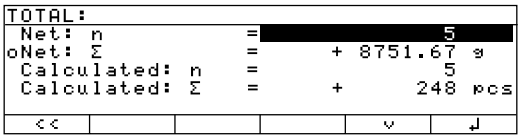
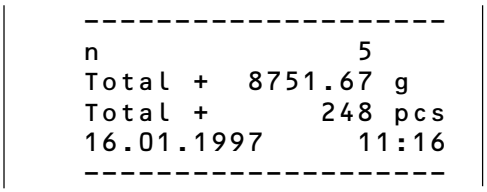
> The scale shuts off

Practical Example
Totalize counted pieces

Settings (changes in the factory settings required for this example):
Setup: Application parameters: Application 2: OFF
Setup: Application parameters: Application 3: Totalizing: Evaluated values: Net + calculated
Setup: Application parameters: Application 3: Totalizing: Evaluation mode, MR function: Final evaluation, display + print

Step	Key (or instruction)	Display/Output
1. Turn on the scale and configure the settings as indicated above	I/⏻	
2. Delete old totalization data, if necessary	CF	
3. Tare the scale	Tare	
4. Toggle to Application 1: Counting	⏻	
5. Place the displayed number of parts on the scale (here: 10 pcs)	Place parts to be counted on the scale	
6. Initialize the Counting application	Start soft key	 
7. Remove the reference sample quantity and toggle to Totalizing	Unload the scale ⏻	
8. Place a number of parts on the scale (here: 50 pcs)	Place parts on the scale	

Totalizing Σ

Step	Key (or instruction)	Display/Output
9. Store piece count	**M+** soft key	 
10. Unload the scale	Remove parts from the scale	
11. Place another load of parts on the scale (e.g., 60 pcs)	Place parts on the scale	
12. Add piece count to stored total	**M+** soft key	 
13. Repeat steps 10 and 11 as required		
14. Display final evaluation ("Info" window) (here: 5 weighing operations; total weight: 8751.67 g; total quantity: 248) The o indicates which value is displayed in the text line; you can change this selection	**MR** soft key	
15. Print final evaluation	[F]	

Formulation

Purpose
With this application program you can add weight values and calculated values to a totalization memory as components of a formula.

You can use the "Formulation" application in combination with a program chosen from Application 1 (except Recalculation) and one from Application 2 (checkweighing, time-controlled functions) as well as with the extra functions.

Available Features
- Totalization of weight values and calculated values
- Weigh in different components to a total amount defined by pressing the **Nom** soft key and entering the value through the numeric keys
- Simultaneous storage of net and calculated values
- Optional configuration in the Setup menu for loading weight values and calculated values either from Application 1 (e.g., counting, weighing in percent) or from Application 2 (checkweighing, time-controlled functions)
- Totalization memory for up to 65535 values
- Transaction counter and current total displayed in the text line
- Scale tared after a value is stored
- Manual input of the number of individual weighing operations (target no. of operation **nDef**). Result printed and memory cleared after printout of **nDef**.
- Optional configuration in the Setup menu to add the current weight, with display accuracy, to the current total by pressing the **M+** soft key and generating a printout of the result
- Optional configuration in the Setup menu for stability-dependent storage of the measured value: **Stability range**
- Optional automatic storage of measured values

  Storage of measured value is indicated by →←.

  ↓↓ indicates that you can place a load on the scale.
- Minimum load threshold for automatic storage
- Press the **M–** soft key to delete the last value added to the totalization memory. The transaction counter value is reduced by one and a printout is generated.
- Printout of an evaluation of results, depending on the Application 1 or Application 2 parameters. Configure the Setup menu to define the information included on this printout.
- Press the key identified by **MR** (soft key) for a printout of an intermediate evaluation after each addition or a final evaluation
- A final evaluation is printed when the formulation routine is ended by pressing CF, if no final evaluation was generated by pressing **MR**
- Optional configuration in the Setup menu to clear the totalization memory and reset the transaction counter by pressing CF or after an evaluation is printed out
- Totalization data and transaction counter data are stored in non-volatile memory
- Continue formulation after turning the scale off and back on

Factory Settings
Automatic storage: **Off**

Minimum load for automatic storage: **20 digits**

Source of data for auto storage: **Application 1**

Evaluated values: **Net**

Evaluation mode, MR key function: **Intermediate evaluation, print**

Printout of individual components: **On**

Scale functions: Stability range: **2 digits**

Printout: Application-defined output: Print on request, then tare: **Off**

Soft Key Functions

M+	Add weight values or application values to the total in the totalization memory. The component or transaction counter value increases by one each time you press this key.
M–	Delete the last value added to memory. The transaction counter value decreases by 1. You cannot delete previous values by repeatedly pressing this key.
MR	Print or display an intermediate or final evaluation
nDef	Store the input number of components
Nom	Press to enter target component weight using the numeric keys

Printout of Formulation Report
When an intermediate or final evaluation is printed out, all results up to this point are included.

```
Comp2 + 42.38 g
Tot.cp+184.89 g
```

Comp2: Weight of the 2nd component
Tot.cp: Total of all components

Formulation

Preparation

- Turn on the scale: press I/⏻

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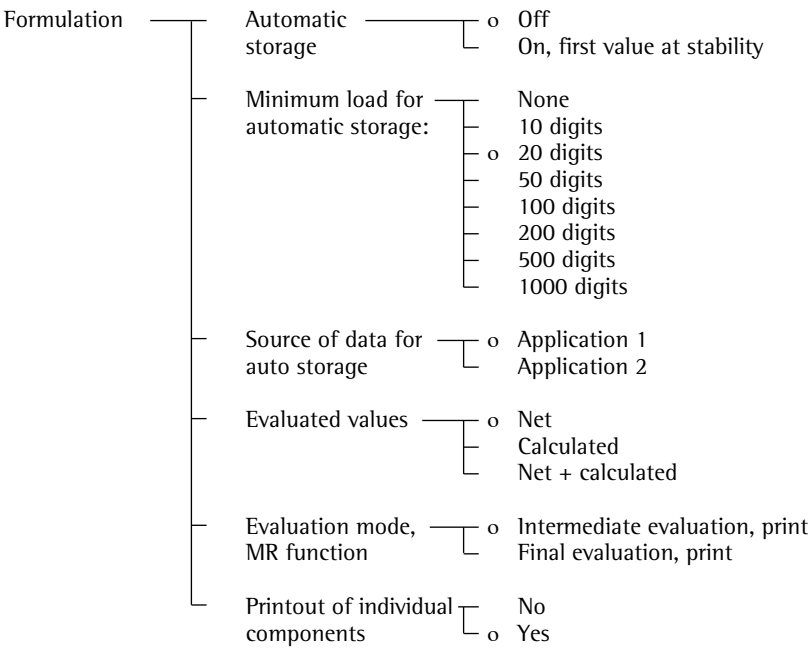
- Select the Formulation application program in the Setup menu: press Setup
- Select `Application parameters`: press the `v` soft key 2 ×, then the `>` soft key once
- Select `Application 3 (data records)`: press the `v` soft key 2 ×, then the `>` soft key once
- Select `Formulation`: press the `^` or the `v` soft key
- Select `Formulation`: press the `>` soft key



o = factory setting

see also the “Application Parameters (Overview)” in the chapter entitled “Configuration”

- Save settings and exit the Setup menu: press the `<<` soft key

Additional Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input),

– printing,

you can also access the following functions from this application:

Calibration/Adjustment

- Press the `isoTST` soft key

> See “Calibration/Adjustment” for further instructions

Toggling to Another Application

- Press ⏻

> See the section on the corresponding application program for further instructions

Setup (Setting Parameters)

- Press Setup

> See “Configuration” for further instructions

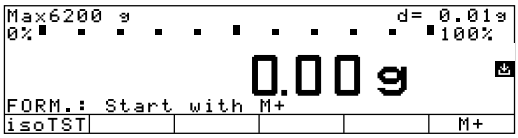
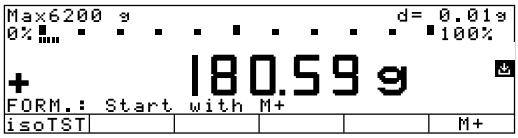
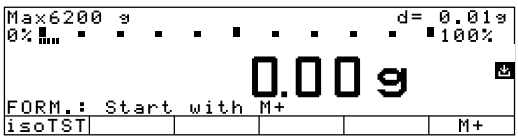
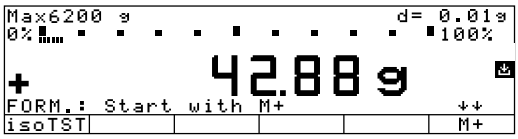
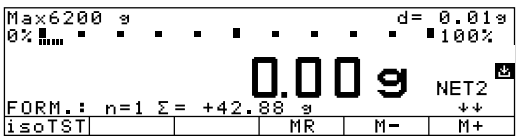
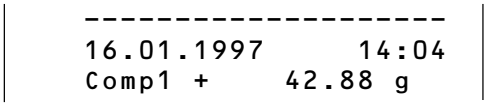
Turning Off the Scale

- Press I/⏻

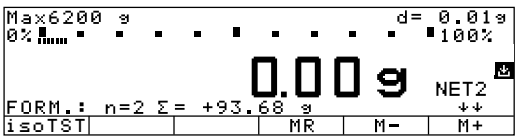
> The scale shuts off

Practical Example
Weighing in Components

Settings (changes in the factory settings required for this example):
Setup: Application parameters: Application 3: Formulation: Automatic storage: On, first value at stability
Setup: Application parameters: Application 3: Formulation: Minimum load for automatic storage: 100 digits
Setup: Application parameters: Application 3: Formulation: Evaluation mode, MR function: Final evaluation, print

Step	Key (or instruction)	Display/Output
1. Turn on the scale and configure the settings as indicated above	I/⏻	
2. Delete old formulation data, if necessary	CF	
3. Tare the scale	Tare	
4. Place the empty container on the scale (here: 180.59 g)	Place load on the scale	
5. Tare the scale	Tare	
6. Weigh in the first component (here: 42.88 g)	Place components in container	
7. Store components in the formulation memory Scale is tared automatically	M+ soft key	
Components are printed out automatically		

Formulation

Step	Key (or instruction)	Display/Output
8. Weigh in the next component (here: 50.80 g) Components are stored in the totalization memory at stability and printed out Scale is tared automatically	Place components in container	Comp2 + 50.80 g 
9. Repeat step 7 as required		
10. Print final evaluation (here: with total weight of all components: 212.43 g)	MR soft key	---------- n 2 Tot.cp+ 212.43 g 16.01.1997 14:10 ----------
11. Delete old formulation data, if necessary	CF	

Statistics x̄

Purpose
With this application program you can have weight values and calculated values totalized and statistically evaluated.

The values determined for the evaluation are:

- average
- standard deviation
- variation coefficient
- sum of all values
- lowest value (minimum)
- highest value (maximum)
- difference between the minimum and the maximum

You can use the "Statistics" application in combination with a program chosen from Application 1 (e.g., counting, weighing in percent) and one from Application 2 (checkweighing, time-controlled functions) as well as with the extra functions.

Available Features
- Storage of weight values and calculated values
- Simultaneous storage of net and calculated values
- Optional configuration in the Setup menu for loading weight values and calculated values either from Application 1 (e.g., counting, weighing in percent) or from Application 2 (checkweighing, time-controlled functions)
- Totalization memory for up to 65535 values
- Simultaneous display in the text line of transaction counter and, e.g., the current total
- Optional configuration in the Setup menu for having the scale tare automatically after a value is stored in the totalization memory
- Manual input of the number of individual weighing operations (target no. of operation `nDef`). Result printed and memory cleared after printout of `nDef`.
- Optional configuration in the Setup menu to add the current weight, with display accuracy, to the current total by pressing the `M+` soft key and generate a printout of the result
- Optional configuration in the Setup menu for stability-dependent storage of the measured value: Scale functions: `Stability range`
- Optional automatic storage of measured values
  Storage of measured value is indicated by →←.
  ↓↓ indicates that you can place a load on the scale.
- Minimum load threshold for automatic storage
- Press the `M-` soft key to delete the last value added to the totalization memory. The transaction counter value is reduced by one and a printout is generated.
- Press the `MR`: soft key for information about number of transactions and the current total. By configuring the Setup menu, you can define whether the information is displayed and printed, or only printed, and whether the information comprises an intermediate or final evaluation (see the example)
- In the Info window you can use the `v`, ↵ soft keys to choose which value is displayed in the text line during weighing
- Printout of the end result depending on the Application 1 or Application 2 parameters. Configure the Setup menu to define which values are included on the printout (Printout of individual components)
- Press `MR` for a printout of an intermediate evaluation after each addition or a final evaluation
- A final evaluation is printed when the statistics routine is ended by pressing CF, if no final evaluation was generated by pressing `MR`
- Optional configuration in the Setup menu to clear the totalization memory and reset the transaction counter by pressing CF or after an evaluation is printed out
- Totalization data and transaction counter data are stored in non-volatile memory
- Continue totalization after turning the scale off and back on

Factory Settings
Automatic storage: `Off`

Minimum load for automatic storage:
`20 digits`

Source of data for auto storage:
`Application 1`

Evaluated values: `Net`

Evaluation mode, MR key function:
`Intermediate evaluation, print`

M+/M– function, then tare: `Off`

Printout of individual components:
`Off`

Scale function: Stability range:
`2 digits`

Printout: Application-defined output:
Print on request, then tare: `Off`

Soft Key Functions

`M+`	Add weight values or application values to the total in the totalization memory. The component or transaction counter value increases by one each time you press this key.
`M-`	Delete the last value added to memory. The transaction counter value decreases by 1. You cannot delete previous values by repeatedly pressing this key.
`MR`	Print or display an intermediate or final evaluation
`nDef`	Store the input number of components

Printout of Statistics
The transaction or component counter is printed in front of each measured value (weight). When an intermediate or final evaluation is printed out, all results up to this point are included.

```
n              5
Total  + 151.67 g
Avg.   +   33.0 pcs
s      +    3.2 pcs
srel   +   9.70 %
Total  +    165 pcs
Min    +     29 pcs
Max    +     37 pcs
Diff   +      8 pcs
```

n:	Transaction counter
Total:	Sum of all values
Mean:	Average
s:	Standard deviation
srel:	Variation coefficient
Total:	Sum of all values
Min:	Minimum
Max:	Maximum
Diff:	Difference between minimum and maximum

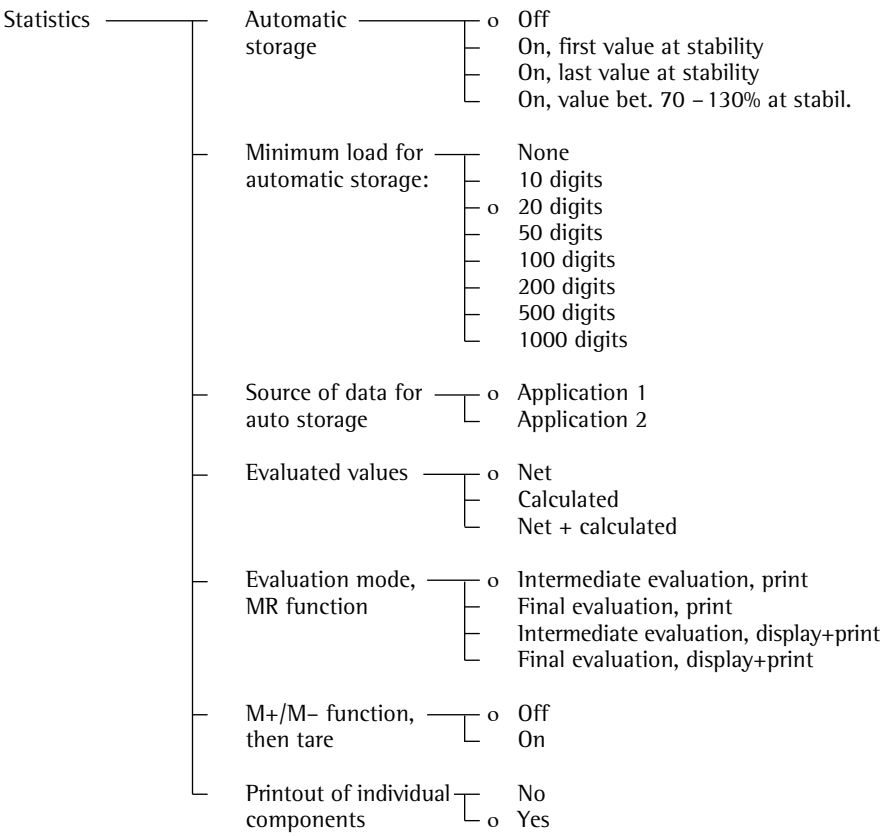
Statistics

Preparation

- Turn on the scale: press I/⏻

> Sartorius logo is displayed

- Select the Statistics application program in the Setup menu: press Setup
- Select `Application parameters`: press the `v` soft key 2 ×, then the `>` soft key once
- Select `Application 3 (data records)`: press the `v` soft key 2 ×, then the `>` soft key once
- Select `Statistics`: press the `^` or the `v` soft key
- Select `Statistics`: press the `>` soft key



o = factory setting

see also the “Application Parameters (Overview)” in the chapter entitled “Configuration”

- Save settings and exit the Setup menu: press the `<<` soft key

Additional Functions

In addition to the functions for:

– alphanumeric input,

– taring (not during alphanumeric input),

– printing,

you can also access the following functions from this application:

Calibration/Adjustment

- Press the `isoTST` soft key

> See “Calibration/Adjustment” for further instructions

Toggling to Another Application

- Press ⏻

> See the section on the corresponding application program for further instructions

Setup (Setting Parameters)

- Press Setup

> See “Configuration” for further instructions

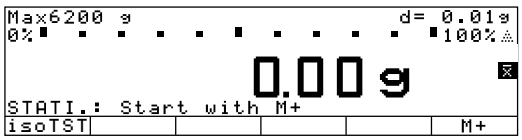
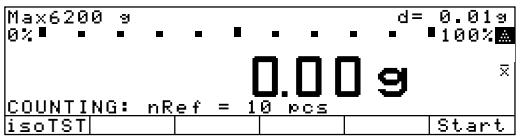
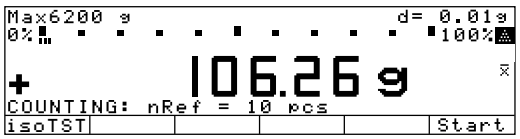
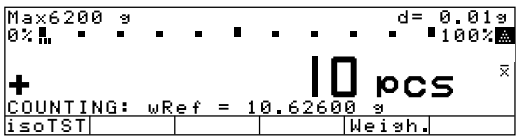
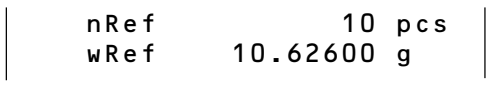
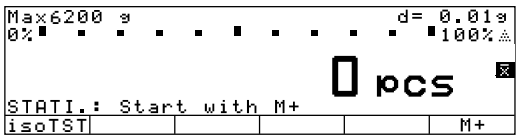
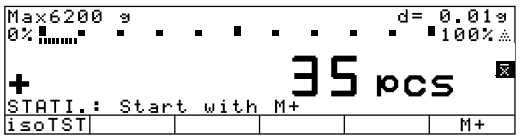
Turning Off the Scale

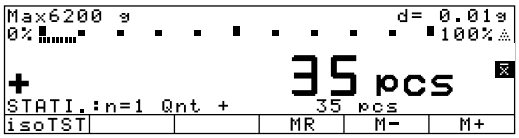
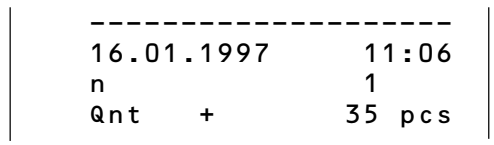
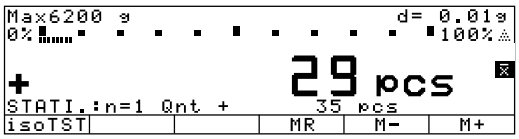
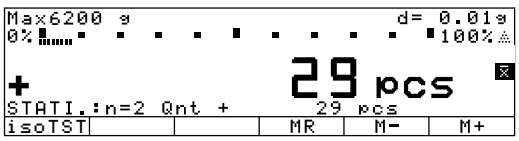
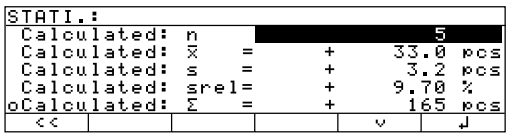
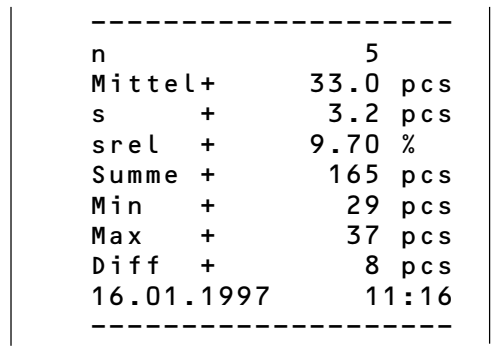
- Press I/⏻

> The scale shuts off

Practical Example
Totalize counted pieces and print out statistics

Settings (changes in the factory settings required for this example):
Setup: Application parameters: Application 1: Counting: Average piece weight updating: Manual
Setup: Application parameters: Application 3: Statistics: Evaluated values: Calculated
Setup: Application parameters: Application 3: Statistics: Evaluation mode, MR function: Final evaluation, display + print

Step	Key (or instruction)	Display/Output
1. Turn on the scale and configure the settings as indicated above	I/⏻	
2. Delete old statistics data, if necessary	CF	
3. Tare the scale	Tare	
4. Toggle to Application 1: Counting	⏻	
5. Place the displayed number of parts on the scale (here: 10 pcs)	Place parts to be counted on the scale	
6. Initialize the Counting application	Start soft key	 
7. Remove the reference sample quantity and toggle to Statistics	Unload the scale ⏻	
8. Place a number of parts on the scale (here: 35 pcs)	Place parts on the scale	

Step	Key (or instruction)	Display/Output
9. Store piece count	**M+** soft key	
		
10. Unload the scale	Remove parts from the scale	
11. Place another load of parts on the scale (e.g., 29 pcs)	Place parts on the scale	
12. Add piece count to stored total	**M+** soft key	
13. Repeat steps 11 and 12 as required		
14. Display final evaluation (“Info” window) (here: 5 weighing operations; total quantity: 165) The o indicates which value is displayed in the text line; you can change this selection	**MR** soft key	
15. Print final evaluation	(E)	

Second Tare Memory (Preset Tare)

Purpose
With this function you can store the weight currently on the scale as a tare weight, or use the numeric keys to enter a number for a preset tare weight.

You can use "Extra Functions" in combination with a program from Application 1 (e.g., counting, weighing in percent), one from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics) as well as with the extra functions.

Available Features
- Store a weight on the scale in the second tare memory (without numeric input)
- Store a numeric value in the second tare memory (input using the numeric keys)
- Label a net value as **NET1** when there is a value stored inthe second tare
- You can assign this function to the fourth or fifth soft key (from the right), i.e. F4 or F5

  The soft key designation for this function is: PT1/T1
- Optional configuration in the Setup menu for storing the current weight readout as the container tare weight. Any load subsequently placed on the scale that is more than 70% of the tare weight is automatically recognized as a container and the scale is tared automatically.
- Automatic printout when a value is stored or input (see "Configuration")
- Press CF to delete the (preset) tare value

Factory Settings
Container tare weight: No

Automatic printout: Off

Soft Key Functions

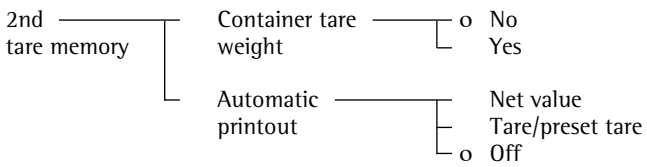
PT1/T1	Store weight as tare value
PT1	Save tare weight entered using the numeric keys

Printout of the Data in the 2nd Tare Memory
The printout shows either
- Net value N1
- Tare weight T1, or
- Manually entered tare value PT1

```
N1      163.48 g
T1      138.73 g
PT1     150.00 g
```

N1: Net weight /value) when a weight is stored in the tare memory
T1: Tare weight
PT1: Preset tare value entered using the numeric keys

Preparation
- Turn on the scale: press I/⏻
- > Sartorius logo is displayed
- Select Extra function (F4) or Extra function (F5) in the Setup menu: press Setup
- Select Application parameters: press the v soft key 2 x, then the > soft key once
- Select Extra function (F4) or Extra function (F5): press the v soft key 3 x, then press the > soft key once
- Select 2nd tare memory
- Confirm 2nd tare memory



o = factory setting

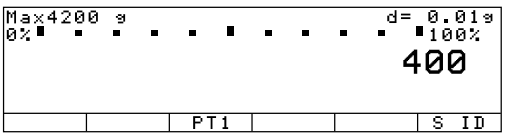
see also "Application Parameters (Overview)" in the chapter entitled "Configuration"

- Save settings and exit the Setup menu: press the << soft key

Second Tare Memory in Legal Metrology
- Press the (i)PT1 soft key to enter information about the tare value using the number keys.
- The PT1 tare value is printed out with the net value.

Practical Example
Determine the Contents of Bottles: Bottle weight = 400 g.

Settings (changes in the factory settings required for this example):
Setup: Application parameters: Extra function(F4): 2nd tare memory: Automatic printout: Tare/preset tare

Step	Key (or instruction)	Display/Output
1. If necessary: turn on the scale and enter the settings given above	I/⏻	
2. Enter bottle weight (here: 400 g)	4 0 0	
3. Store tare value	PT1 soft key	 PT1 + 400.00 g
4. Determine content weight of bottles (here: contents = 650 g)	Place filled bottles on the scale	

Individual Identification Codes (ID)

Purpose
With this function you can assign identifiers to values for documentation and printouts.

You can use this extra function in combination with a program from Application 1 (e.g., counting, weighing in percent), one from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics) as well as with the other extra functions.

Available Features
- Store up to 4 IDs; these can be stored, changed or deleted individually.
- Each ID consists of a name and a value; both can be defined by the user.
- ID designations are configured in the Setup: Input menu.
- Each ID designation can have up to 20 characters; when you enter the value later, however, no more than 15 characters of the designation are displayed.
- The ID values are entered while the application program is active; press the **ID** soft key to toggle to the ID input mode.
- Each ID value can have up to 20 characters.
- Access 1 of the 4 IDs directly using the numeric keys. The other three can only be accessed by pressing the **ID** soft key to toggle to the identifier input mode.
- You can assign this function to the fourth or fifth soft key (from the right), i.e. F4 or F5.
- You can configure when the ID is included on the printout (see "Preparation," next page).
- You can configure the position of IDs on the individual or total printout.
- The designation is printed flush left; the value flush right. If the name and value together are too long for one line, the data is printed on two lines.
- Optional configuration in the Setup menu to delete a single character when entering an identifier by pressing CF. Setup: Device: Keys: CF function for input: Delete last character
- Press the **Delete** soft key to delete an ID

Factory Settings for ID Designations
ID1: **ID1**
ID2: **ID2**
ID3: **ID3**
ID4: **ID4**

Factory Settings for ID Values
No values set

Factory Settings for Other Parameters
Printout:
`Each time the print key is pressed`

Soft Key Functions

ID	Toggle to "Identification codes" menu
Delete	Delete input of selected ID

Individual Identification Codes (ID)

Preparation

● Turn on the scale: press I/⏻

> Sartorius logo is displayed

● Select Extra function (F4) or Extra function (F5) in the Setup menu: press Setup

● Select `Application parameters`: press the `v` soft key 2 x, then the `>` soft key once

● Select `Extra function(F4)` or `Extra function(F5):` press the `v` soft key 3 x (or 4 x), then the `>` soft key once

● Select `Identification codes`

● Confirm `Identification codes`

Identification codes — Printout:
- Automatic, if configured
- Once after pressing print, if configured
- o Each time the print key is pressed
- Once for M+ function (app.3 memory)

o = factory setting

see also “Application Parameters (Overview)” in the chapter entitled “Configuration”

● Save settings for the printout: press the `<` soft key 4 x

● Enter ID name: Select “Printout”: press the `v` soft key, then the `>` soft key

● Select “Identification #”: press the `v` soft key 5 x, then the `>` soft key once

● Select `ID1`

● Enter name for `ID1` and confirm: use the numeric keys for numbers and/or the soft keys to enter letters

○ Enter names for `ID2`, `ID3` and `ID4`, if desired

● Save settings and exit the Setup menu: press the `<<` soft key

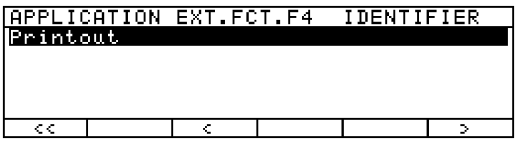
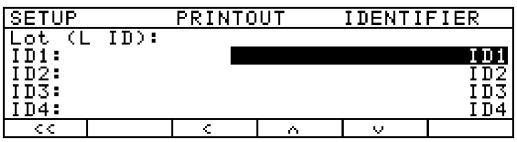
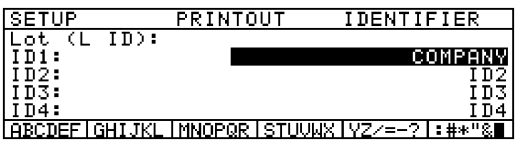
Example

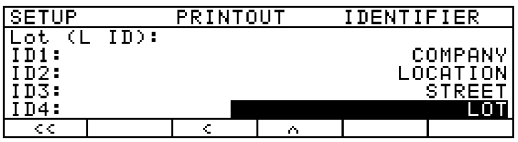
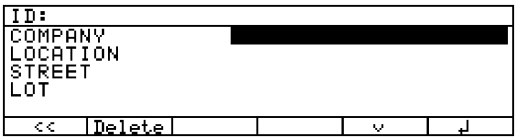
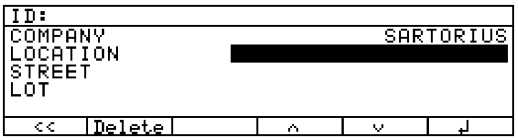
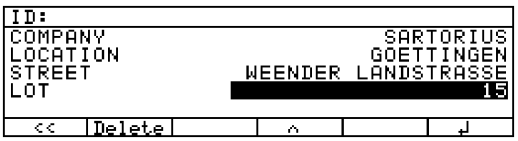
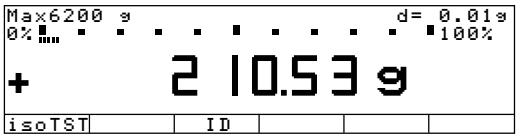
See next page

Example
Include company address and sample lot number on the printout. Each ID line begins with the name.
Print this ID for each net value.

Settings (changes in the factory settings required for this example):

Setup: Application parameters: Extra function (F4): Identification codes
Setup: Input: ID1: Company
Setup: Input: ID2: Location
Setup: Input: ID3: Street
Setup: Input: ID4: Lot

Step	Press key(s) (or follow instructions)	Display/Output
1. If necessary, turn on the scale	I/⏻	
2. Select “Extra Function (F4)” in the Setup menu	Setup ˅ soft key 2 ×, then ˃ soft key once ˅ soft key 3 ×, then ˃ soft key once	
3. Select “Identification codes”	˅ or ˄ soft key; repeatedly, if necessary	
4. Confirm “Identification codes” and exit this menu item	˃ soft key; then ˂ soft key 3 ×	
5. Select ID1 (Printout: Identifier)	˅ or ˃ soft key ˅ soft key 5 ×, then ˃ soft key, then ˅ soft key	
6. Enter name for ID 1 (in this case: COMPANY and confirm	ABC ... see also page 40 ABC, ↵ soft key	

Step	Key (or instruction)	Display/Output
7. Repeat steps 5 and 6 for: ID2: LOCATION ID3: STREET ID4: LOT		
8. Save settings, exit the Setup menu and select input mode for ID values	**<<** soft key twice **ID** soft key	
9. Enter name of company (here: Sartorius)	ABC ... See also page 40	
10. Confirm	ABC, ↵ soft key	
11. Repeat steps 9 and 10 for LOCATION: GOETTINGEN STREET: WEENDER LANDSTRASSE LOT: 15		
12. Place the first sample on the scale (here: 210.53 g)	Place load on scale	
13. Print weight value (if desired, perform further weighing operations and print results)	F	
14. When weighing is completed, delete each ID individually	**ID** soft key **Delete** soft key 4 times	

Saving Values Manually (M+)

Purpose
With this function you can load weight values and calculation results directly from Application 1 (e.g., counting, weighing in percent) or Application 2 (checkweighing, time-controlled functions) into Application 3 (totalizing, formulation, statistics).

Available Features
- You can assign this function to the fourth or fifth soft key (from the right), i.e. F4 or F5
  The soft key designation for this function is: M+

- An Application 3 program (totalizing, formulation or statistics) must be running so you can display and print the result

Factory Settings
There are no optional parameters

Preparation
- Turn on the scale: press I/⏻

> Sartorius logo is displayed

- Select Extra function (F4) or Extra function (F5) in the Setup menu: press Setup
- Select Application parameters: press the v soft key 2 ×, then the > soft key
- Select Extra function (F4) or Extra function (F5): press the v soft key 3 × (or 4 x), then the > soft key once
- Select Man. store in app.3 memory (M+)
- Confirm Man. store in app.3 memory (M+)

  See also “Application Parameters (Overview)” in the chapter entitled “Configuration”

- Save settings and exit the Setup menu: press the << soft key

Product Data Memory

Purpose
With this function you can enter, store and load data records for initialization of applications, including user-defined data.

You can use this extra function in combination with a program from Application 1 (e.g., counting, weighing in percent), one from Application 2 (checkweighing, time-controlled functions) and the other extra functions for F4 and F5 (identification codes, 2nd tare memory).

Available Features
- Store up to 300 data records.
- Data records can be created, stored or deleted individually.
- Press the **ProDat** soft key to display product data.
- Define a name for each data record of up to 15 alphanumeric characters.
- Optional configuration in the Setup menu to delete a single character when entering a data record name by pressing CF. Setup: Device: Keys: CF function for input: Delete last character.
- Data records are displayed in alphabetical order.
- Initialization data set for an application (such as wRef, nRef) is saved when you select the Store option. With several applications and extra functions active, you can select the desired parameters before saving the data to define initialization data.
- Use the alphanumeric keypad to search for and display individual data records.
- You can assign this function to the fourth or fifth soft key (from the right), i.e. F4 or F5.
- Error messages are displayed in the text line in plain English.
- Press the **Delete** soft key to delete a data record.

Data Battery-Backed Data Memory
When the scale is disconnected from AC power, these scale-generated data will remain stored for approx. three months. In the standby mode, data are retained by the power supply.

Factory Settings
No user-definable parameters.

Soft Key Functions

ProDat	Toggle to product data display
Delete	Delete selected data record
Load	Overwrite the initialization data with the selected data record
Change	Change the data in the stored data record
Store	Store the initialization data of the selected application under the chosen data record name. If data already exist for this data record, a prompt asks whether this data should be overwritten.
No	Answer no to cancel a “delete” or “overwrite” operation
Yes	Answer yes to perform the “delete” or “overwrite” operation
New	Create a new data record (after entering a data record name) and selecting an application, if desired).

Preparation
- Turn on the scale: press I/⏻

> Sartorius logo is displayed

- Select Extra function (F4) or Extra function (F5) in the Setup menu: press Setup
- Select **Application parameters**: press the **v** soft key 2 ×, then the **>** soft key
- Select **Extra function (F4)** or **Extra function (F5)**: press the **v** soft key 3 × (or 4 x), then the **>** soft key
- Select **Product data memory**
- Confirm **Product data memory**

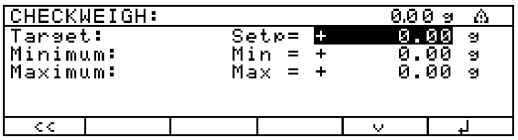
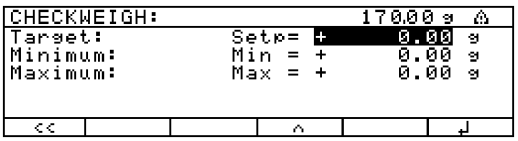
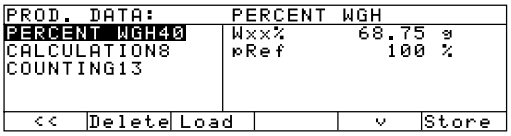
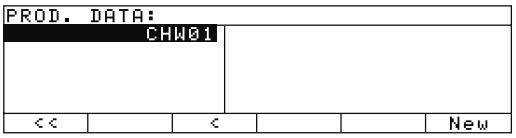
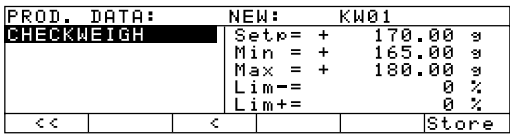
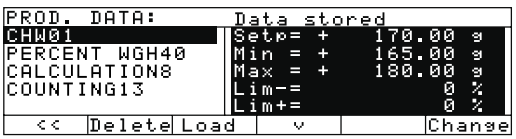
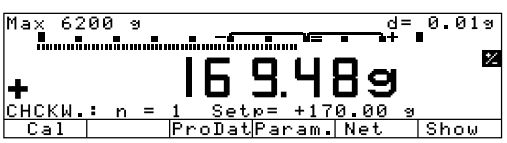
See also “Application Parameters (Overview)” in the chapter entitled “Configuration”

- Save settings and exit the Setup menu: press the **<<** soft key

Practical Example
Create a New Base Data Record for Initializing the Checkweighing Program, Including: Target Value, Minimum, Maximum

Settings (changes in the factory settings required for this example):

Setup: Application parameters: Extra function (F4): Product data memory
Setup: Application parameters: Application 2: Checkweighing

Step	Key (or instruction)	Display/Output
1. If necessary: turn on the scale and enter the settings given above	I/⏻	
2. In the Checkweighing application, toggle to the input mode for target, minimum and maximum values	**Param.** soft key	
3. Enter target: 170 g; minimum: 165 g; maximum: 180 g	see the Practical Example for Checkweighing, steps 5 through 9	
4. Toggle to display of product data (existing data records are displayed; in this example, 3 data records have been stored)	**ProDat** soft key	
5. Enter a name for the new data record (here: CHW01)	ABC **ABCDEF** soft key, **C** soft key **GHIJKL** soft key, **H** soft key **STUVWX** soft key, **W** soft key 0 1	
6. Store current Checkweighing parameters as a data record	**New** soft key	
7. Confirm	**Store** soft key	
8. Exit data record display	**<<** soft key	

"FlexPrint" Printout Function

Purpose
The YAD02IS "Nice Label Express" software from Sartorius lets you load user-defined label printing formats and the corresponding print instruction files in your scale. This software lets you connect any of a number of printers, equipped with a variety of printer fonts, to the RS-232 interface on your scale.

Features
With the "FlexPrint" option activated:
- Print command generates configured printout (if print instruction file exists; see table, next page). Print command generates default printout (if print instruction file does not exist).

- The function that generates an automatic printout upon initialization of an application cannot be used. Initialization data can be output only to a print instruction file.

The following items are output only as standard printouts:
- Calibration/adjustment
- SETUP printouts
- (⌸) key in "Identifier:" display page
- (⌸) key on "Product data memory:" display page
- (⌸) on "Parameter" display page for "Checkweighing" application: print function carried out
- MR function carried out when (⌸) is pressed during evaluation (info window) in Totalizing and Statistics applications.
- To recall the file names, software ID and version numbers, for FlexPrint, see the section on "Basic Settings," Info Display."

- Printout for legal metrology: Weight blocks (special weight value formats that are acceptable in legal metrology) are designated by the following line, which is printed in both header and footer and cannot be edited:
»------ CE [M] ------«

Examples of Weight Block Printouts

Without tare:
```
------ CE [M] ------
N   +       348.65 kg
------ CE [M] ------
```

With tare:
```
------ CE [M] ------
G   +       459.70 kg
N   +       348.65 kg
T1  +       111.05 kg
------ CE [M] ------
```

Scale tare (2nd tare memory):
```
------ CE [M] ------
G   +       124.45 kg
N   +       100.00 kg
T1  +        24.00 kg
T2  +         0.45 kg
------ CE [M] ------
```

Preparation
- Turn on the scale: press the (I/⏻) key
- Configure FlexPrint in Setup: press the (Setup) key
- Select `Printout`: press `v` soft key repeatedly and then `>` soft key
- Confirm `Printout`: press the `>` soft key
- Select `FlexPrint`: press `v` soft key 3 times and then `>` soft key
- Select `On`: press `v` soft key and then `>` soft key
- Save settings and exit Setup: press `<<` soft key

Print events with all applications except differential weighing
Printouts generated using the "Nice Label Express" software are divided into two groups:

Event	Explanation	File name for event group:
1. (⌸) key with individual values	Print key	PPRINT
2. (⌸) key with text input	Input and (⌸) key	PDIRECT
3. GLP/GMP header	GLP header	PGMPHEAD
4. GLP/GMP footer	GLP footer	PGMPFOOT
5. Results, Application 1	Animal weighing, MR-CF	PA1RES
6. Results, Application 2	OK values, time-controlled print	PA2RES
7. Results, Application 3	MR, MR-CF	PA3RES
8. Components, Application 1	M+ printout	PA1COMP
9. Components, Application 3	M+/M– printout	PA3COMP

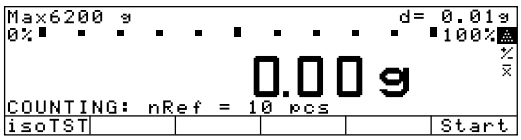
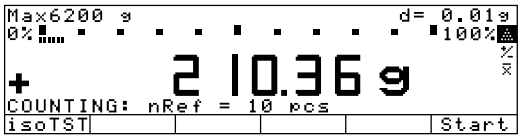
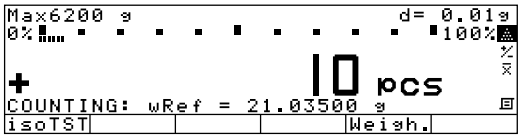
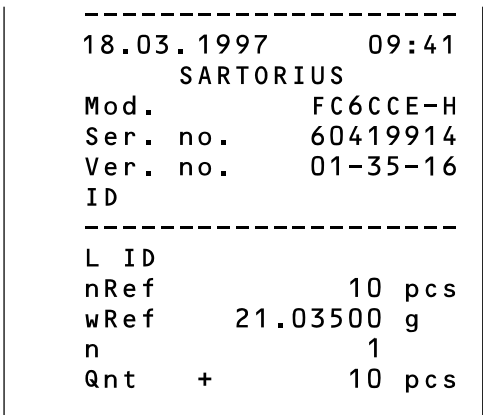
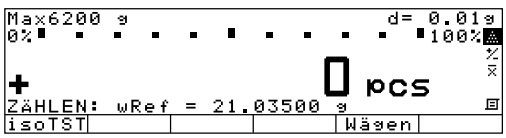
Combining Applications

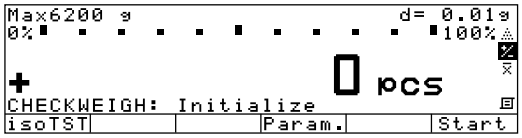
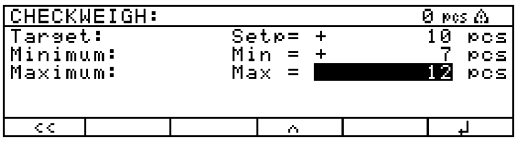
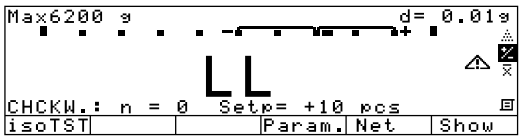
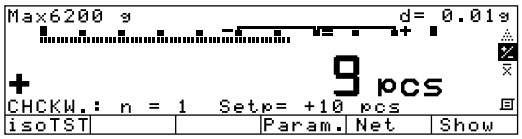
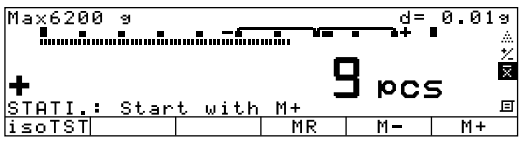
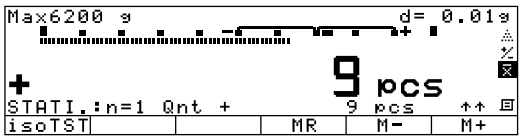
The following table summarizes the possibilities for combination of the application programs described here. Each line stands for one combination. The weighing function is generally available, and does not have to be combined with a calculating function.

Application 1 (basic settings)	Application 2 (checking and control functions)	Application 3 (data records and documenting functions)
Counting	–	Totalizing
Counting	–	Formulation
Counting	–	Statistics
Weighing in percent	–	Totalizing
Weighing in percent	–	Formulation
Weighing in percent	–	Statistics
Animal weighing	–	Totalizing
Animal weighing	–	Statistics
Recalculation	–	Totalizing
Recalculation	–	Statistics
Calculation	–	Totalizing
Calculation	–	Formulation
Calculation	–	Statistics
Density determination	–	Statistics
Density determination	Time-controlled functions	Statistics
Differential weighing	–	–
–	Checkweighing	Totalizing
–	Checkweighing	Formulation
–	Checkweighing	Statistics
Counting	Checkweighing	Totalizing
Counting	Checkweighing	Formulation
Counting	Checkweighing	Statistics
Weighing in percent	Checkweighing	Totalizing
Weighing in percent	Checkweighing	Formulation
Weighing in percent	Checkweighing	Statistics
Recalculation	Checkweighing	Totalizing
Recalculation	Checkweighing	Statistics
Calculation	Checkweighing	Totalizing
Calculation	Checkweighing	Formulation
Calculation	Checkweighing	Statistics
–	Time-controlled functions	Totalizing
–	Time-controlled functions	Formulation
–	Time-controlled functions	Statistics
Counting	Time-controlled functions	Totalizing
Counting	Time-controlled functions	Formulation
Counting	Time-controlled functions	Statistics
Weighing in percent	Time-controlled functions	Totalizing
Weighing n percent	Time-controlled functions	Formulation
Weighing in percent	Time-controlled functions	Statistics
Animal weighing	Time-controlled functions	Totalizing
Animal weighing	Time-controlled functions	Statistics
Recalculation	Time-controlled functions	Totalizing
Recalculation	Time-controlled functions	Statistics
Calculation	Time-controlled functions	Totalizing
Calculation	Time-controlled functions	Formulation
Calculation	Time-controlled functions	Statistics

Example: Checkweighing with statistical evaluation
You want to check a piece count, and have the results that lie within the tolerance range statistically evaluated and printed as an ISO/GMP-compliant record.

Settings (changes in the factory settings required for this example):
Setup: Application parameters: Application 3: Statistics: Automatic storage: On, first value at stability
Setup: Application parameters: Application 3: Statistics: Source of data for auto storage: Application 2
Setup: Application parameters: Application 3: Statistics: Evaluated value: Calculated
Setup: Application parameters: Application 3: Statistics: Evaluation mode, MR function: Intermediate evaluation, display+print
Setup: Application parameters: Basic application: Printout configuration: ISO/GLP/GMP printout: Always

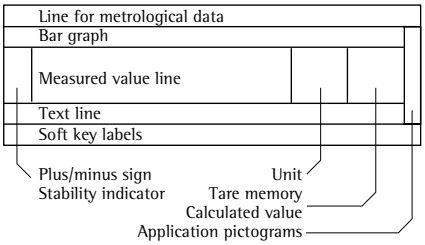
Step	Key (or instruction)	Display/Output
1. If necessary: turn on the scale and enter the settings given above	I/⏻	
2. Place reference sample quantity on the scale	Place parts on the scale	
3. Initialize the scale	**Start** soft key	
		
4. Remove reference sample quantity	Unload the scale	

Step	Key (or instruction)	Display/Output
5. Initialize Checkweighing Toggle to Checkweighing	⟲	
6. Enter target, minimum and maximum values (here: target: 10 pcs; minimum: 7 pcs; maximum: 12 pcs)	**Param.** soft key 1 0, ↵ soft key 7, ↵ soft key 1 2	
7. Store input	↵ soft key	 Setp + 10 pcs Min + 7 pcs Max + 12 pcs
8. Determine first unknown quantity	Place uncounted parts on the scale	
9. Toggle to Statistics	⟲	
10. Initialize automatic storage	**M+** soft key	 n 1 Qnt + 9 pcs
11. Determine further unknown quantities Printout is generated automatically	Place parts to be counted on the scale	n 4 Avg. + 10.0 pcs s + 0.8 pcs srel + 8.00 % Total + 40 pcs Min + 9 pcs Max + 11 pcs Diff + 2 pcs --- 18.03.1997 10:26 Name: ---
12. End weighing series Statistics are evaluated Final GMP printout is generated	CF	
13. Delete initialization of the last application	CF	

Data Output Functions

There are 3 options for data output:

- Output to the display and control unit
- Output to a printer (generate a printout)
- Output to a peripheral device (e.g., computer) via the interface port



Output to the Display and Control Unit
The display is divided into 9 sections. Information about the scale, the application being used and the sample weighed is output in the following sections:

- Line for metrological data
- Bar graph
- Plus/minus sign, stability symbol display
- Measured value line
- Weight unit display
- Data in tare memory; calculated value
- Application symbol display
- Text line
- Soft key labels

Line for Metrological Data (on scales verified for legal metrology)

This line shows:

Max6200 g – Maximum scale capacity (e.g., 6,200 g)

Min 0.5 g – Minimum scale capacity; the weight must not go below this limit when the scale is used in legal metrology

e= 0.1 g – Verification interval of the scale; irrelevant if the scale is not used in legal metrology (e.g., 0.1 g)

d=0.01 g – Readability: Indicates the actual scale interval (display increment of the scale) (e.g., 0.01 g)

Bar Graph (overview display)
In the bar graph, weighing results are displayed either

- as a percentage of the maximum scale capacity, or
- in relation to a target value, with tolerance limits indicated.

You can turn off (blank) the bar graph display (Setup: Device: Display: Digit size: 13 mm + text display or 13 mm)

Plus/Minus Sign, Stability Symbol
This section shows:

– "Busy" symbol

\+ – – Plus or minus sign

– Zero symbol (indicating the scale has been zeroed

Measured Value Line
This line shows:

125.03 – The current weight value (bordered values are invalid in legal metrology)

35 – Calculated values (e.g., piece count)

=W* 18.3*0.9 – User input (e.g., lot number, equation)

Weight Unit Display
This section shows:

g – The current weight unit (e.g., kg)

pcs – Designation of other values (e.g., “pcs”)

Tare Memory, Calculated Value
This section shows:

⚠ – Indication that value is calculated (not valid in legal metrology)

NET1 NET2 – Indication that the tare memory contains application data

Application Symbols
This column shows:

U1 – Symbol for Application 1 (toggling between weight units, counting, weighing in percent, animal weighing, calculation)

– Symbol for Application 2 (checkweighing, time)

– Symbol for Application 3 (totalizing, formulation, statistics)

– Symbol for current print job

– Symbol for ISO/GMP printout

Text Line
This line contains:

COUNTING: nRef = 10 pcs – Explanatory text about the application program (e.g., about “Counting”)

Ref.wt. too light – Explanation of error codes

Soft Key Labels
This line shows

isoTST PT1/T1 S ID M+ – Texts (abbreviations) to indicate the function assigned to each key

<< < ∧ v > ↵ – Symbol for selecting and confirming parameter settings (see also “Operating Design”)

Balance Information
In the Setup menu, you can select **Setup: Info: Device information** for a display of scale information. The display includes:

SETUP INFO	
Version no.:	01-35-18
Bal. ver. no.:	00-20-13
Model:	FC6CE-H
Serial no.:	70906913
<<	

– Software version number

– Scale version number

– Scale model

– Scale serial number

Printouts

Purpose
This function enables you to print out weights, other measured values and IDs. You can format the printout to meet different requirements.

Features
Line format: you can configure a data ID code with up to 6 characters at the beginning of each of the values to be printed

Weight ID:
You can configure an extra line for identification of each weighed or calculated value using the code `S ID`

Print application parameters:
You can generate a printout of the values configured for initialization of an application before printing the measured results

ISO/GMP-compliant printout:
You can print out parameters relating to the weighing conditions

Print animal weights:
Application-defined, automatic printout of animal weights or of animal weights plus calculated weights after averaging

Optimizing interfaces:
- Use the highest possible baud rate
- Turn off interfaces that are not in use
- Optimize the amount of data to be transfered

Configuring Printout Formats
For a number of application programs, you need to set initialization values. All values upon initialization or only the main values can be automatically printed as soon as you have configured this in the Setup menu: `Auto print upon initialization`

Weights and calculated values can be printed as numeric values either with a preceding data ID code (numeric value with 22 characters) or without one (numeric value only 16 characters). See also the section on `Line format` in the chapter entitled “Data Output Functions”.

You can generate an ISO/GMP print-out always or only for calibration/adjustment or turn off this option. See also page 107.

Generating an ISO/GMP Printout
In the Setup menu, you have a choice of three settings:

- No ISO/GMP printout generated (`Off`)
- ISO/GMP printout generated only for calibration/adjustment (`Only for calibration/adjustment`)
- Every printout is an ISO/GMP-compliant report (`Always on`)

Auto print checkweighing results: automatic printout of a weight when it lies within the preset limits at stability

Auto print with time-controlled functions: automatic printout of weights after a preset time has elapsed or at a defined time
Printout of intermediate or final evaluation from the application 3 memory (totalizing, formulation and statistics); generate by pressing the `MR` soft key

Generating Printouts Acceptable for Legal Metrology:
You can configure the Setup menu of the scale to generate data records that are acceptable for legal metrology on a Sartorius printer:

- YDP02
- YDP03
- YDP01IS
- YDP01IS Label
- YDP02IS
- YDP02IS Label
- YDP04IS
- YDP04IS Label

ISO/GMP-compliant Printout/Record
You can have the parameters pertaining to weighing conditions printed before (GMP header) and after (GMP footer) the values from the weighing series. These parameters include:

- Date
- Time at the beginning of a weighing series
- Scale manufacturer
- Scale model
- Model serial number
- Software version
- Lot number (weighing series no.)
- Time at the conclusion of the weighing series
- Field for operator signature

Operating the Scale with an ISO/GMP-capable Documentation Device (Printer)

ISO/GMP-compliant documentation requires a computer with special software. Contact Sartorius for a detailed description for creating this software.

Setting:
Setup: Printout: ISO/GLP/GMP printout: Always on

The record is output to a Sartorius YDP03-0CE Data Printer or a computer.

End GMP printout:

● Press CF
End GMP printout while application is active:
This requires the following settings:
Setup: Device: Keys: CF function in application: Clear only selected applications

● Press CF
> Text line: CF selected: clear application

● Press the GLP soft key

```
--------------------
17.01.1997      16:12
      SARTORIUS
Mod.          FC6CCE-H
Ser. no.      60419914
Ver. no.      01-35-18
ID     12345678901234
--------------------
L ID   12345678901234
nRef            10 pcs
wRef      1.35274 g
Qnt    +       235 pcs
Qnt    +      4721 pcs
S ID   12345678901234
Qnt    +       567 pcs
--------------------
17.01.1997      16:13
Name:

--------------------
```

Dotted line
Date/time
Scale manufacturer
Scale model
Scale serial number
Software vers. (display and control unit)
Scale ID no.
Dotted line
Weighing series no.
Application initialization value
Application initialization value
Counting result
Counting result
ID for counting result
Counting result
Dotted line
Date/time
Field for operator signature
Blank line
Dotted line

Record of Internal Calibration/Adjustment:

```
--------------------
17.01.1997      16:24
        SARTORIUS
Mod.          FC6CCE-H
Ser. no.      60419914
Ver. no.      01-35-18
ID
--------------------
L ID   12345678901234
Internal calibration
Start:     manual
Diff. +      0.006 g
Internal calibration
         completed
Diff. +      0.000 g

--------------------
17.01.1997      16:25
Name:

--------------------
```

Dotted line
Date/time
Scale manufacturer
Scale model
Scale serial number
Software vers. (display and control unit)
Scale ID no.
Dotted line
Weighing series no.
Calibration adjustment mode
Beginning mode for calibration/adjustment
Difference after calibration/adjustment
Confirmation of completed calibration/adjustment routine
Difference between current and target values after calibration
Dotted line
Date/time
Field for operator signature
Blank line
Dotted line

Interface Description

Purpose
Your Factory scale comes equipped with an interface port for connection to a computer or other peripheral device.

You can use an on-line computer to change, start and/or monitor the functions of the scale and the application programs. The interface port also has four data output port lines for the over/under checkweighing program. A connector for a hand or foot switch is also provided.

⚠ **Warning When Using Pre-wired RS-232 Connecting Cables!**
RS-232 cables purchased from other manufacturers often have incorrect pin assignments for use with Sartorius scales. Be sure to check the pin assignment against the chart below before connecting the cable, and disconnect any lines marked “Internally Connected” (e.g., pin 6). Failure to do so may damage or even completely ruin your scale and/or peripheral device.

Available Features

Type of interface:	Serial interface
Operating mode:	Full duplex
Standard:	RS-232
Transmission rates:	150; 300; 600; 1,200; 2,400; 4,800; 9,600; 19,200 baud
Parity:	Space, odd, even
Character format:	1 start bit, 7- or 8-bit ASCII, parity, 1 or 2 stop bits
Handshake:	2-wire interface: via software (XON/XOFF); 4-wire interface: via hardware handshake lines (CTS/DTR)
(CTS/DTR)	
Operating mode:	SBI, XBPI*
Network address**:	0, 1, 2, ..., 30, 31
Data output format of the scale:	16 or 22 characters

* XBPI operating mode: 9,600 baud, 8 bits, odd parity, 1 stop bit
** Network address is valid only in the XBPI mode

Factory Settings:

Transmission rate:	1,200 baud
Parity:	Odd
Stop bits:	1 stop bit
Handshake:	Hardware 1 character after CTS
Operating mode:	SBI
Network address:	0
Print manually/automatically:	Manual after stability
Stop automatic printing:	Not possible
Automatic printout, time-dependent:	After 1 display update
Tare after ind. printout:	Off
Application initialization values:	Off
Line format:	For other applications/GLP (22 characters)

Preparation
● See the page 113 for the pin assignment chart

Line Format (Data Output Format)
You can output the values displayed in the measured value line and the weight unit with or without a data ID code

Example: Without data ID code
```
+       253 pcs
```

Example: With data ID code
```
Qnt    +       253 pcs
```

Configure this parameter in the Setup menu (Setup: Printout: Line format).

The output without data ID code has 16 characters; with data ID code, 22 characters.

Output Format With 16 Characters

Display segments that are not activated are output as spaces. Characters without a decimal point are output without a decimal point.

The following characters can be output, depending on the characters displayed on the scale:

Normal Operation

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
or	–		.	.	.	.	.	.	.	.		*	*	*		
or	*		*	*	*	*	*	*	*	*						

*: Space
D: Digit or letter
U: Unit symbol
CR: Carriage return
LF: Line feed

Special Codes

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	*	*	*	–	–	*	*	*	*	*	*	CR	LF
or							H	H								
or							L	L								
or							C									

*: Space
– –: Weight
H: Overload
H H: Overload in checkweighing
L: Underload
L L: Underload in checkweighing
C: Calibration/adjustment

Error Codes

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	E	r	r	*	*/#	#	#	*	*	*	*	CR	LF

*: Space
#: Error code number

Data output example: + 1255.7 g

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	*	*	1	2	5	5	.	7	*	g	*	*	CR	LF

Position 1: Plus or minus sign or space
Position 2: Space
Position 3–10: Weight with a decimal point; leading zeros = space
Position 11: Space
Position 12–14: Unit symbol or space
Position 15: Carriage return
Position 16: Line feed

Data Output With ID Code

When data with an ID code is output, the ID code consisting of 6 characters precedes the data with the 16-character format. These 6 characters identify the subsequent value.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
I	I	I	I	I	I	+	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
	*	*	*	*	*	–		.	.	.	.	.	.	.	.		*	*	*		
						*		*	*	*	*	*	*	*	*						

I: ID code character[1])
*: Space
D: Digit or letter
U: Unit symbol[1]) see "Toggling between Weight Units"
CR: Carriage return
LF: Line feed

[1]) depends on scale type; e.g., not all units and characters are available on scales verified for use in legal metrology

Special Codes

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
S	t	a	t	*	*	*	*	*	*	*	*	–	–	*	*	*	*	*	*	CR	LF
												H	H								
												L	L								
												C									

*: Space
– –: Weight
H: Overload
H H: Overload in checkweighing
L: Underload
L L: Underload in checkweighing
C: Calibration/adjustment

Error Codes

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
S	t	a	t	*	*	*	*	*	E	r	r	*	#	#	#	*	*	*	*	CR	LF

*: Space
#: Error code number

ID code characters I[1])

`Stat`	Status
`ID`	Identifier
`L ID`	Weighing series no.
`W ID`	Weight set number
`Nom.`	Exact calibration weight
`S ID`	Sample ID
`NUM`	Numeric input
`T1`	Application tare memory 1
`N`	Net weight (T1 = 0)
`N1`	Net weight (T1 ≠ 0)
`Qnt`	Quantity
`Prc`	Percentage
`nRef`	Reference sample quantity
`pRef`	Reference percentage
`wRef`	Average piece weight
`Wxx%`	Reference percentage weight
`mDef`	Target value for animal weighing
`Mul`	Multiplication factor for animal weighing
`x-Net`	Result in animal weighing
`x-Res`	Calculated result in animal weighing
`Res`	Result using equation (Calculation)
`Setp`	Target value for checkweighing
`Min`	Lower limit for checkweighing
`Max`	Upper limit for checkweighing
`Time`	Time that a value was stored
`Compxx`	No. of components in formulation
`Tot.cp`	Total weight in formulation
`n`	Transaction counter
`Total`	Sum of all values
`Avg`	Average in statistics
`s`	Standard deviation
`srel`	Variation coefficient
`Diff`	Difference between maximum and minimum

Data Input Format
You can connect a computer to your scale to send commands via the scale interface port to control scale functions and applications.

The commands sent are control commands and may have different formats; e.g., control commands can have up to 26 characters. Each character must be transmitted according to the settings configured in the Setup menu for data transmission.

Format for Control Commands

Format 1:	Esc	!	CR	LF						
Format 2:	Esc	!	#	_	CR	LF				
Format 3:	Esc	!	#	&t		(max. 20 &t) &t	_	CR	LF	
Format 4:	Esc	!	#	&t		(max. 8 &t)	&t	_	CR	LF

Esc:	Escape	_:	Underline (ASCII: 95)
!:	Command character	CR:	Carriage Return (optional)
#:	Number	LF:	Line Feed (optional)
&t:	Number or letter	max:	depends on command character: i.e. parameter: once the max. length is reached, input received is cut off, rather than discarded as with keyboard input

Format 1

!	Meaning
l	Weighing mode 1
L	Weighing mode 2
M	Weighing mode 3
N	Weighing mode 4
O	Block keys
P	Print
R	Unblock keys
S	Restart
T	Tare and zero
Z	Internal calibration/adjustment**
Q	Acoustic signal

Format 2

!#	Meaning	
f3	Zero	
f4	Tare (without zeroing)	
kF1 ... kF6	Soft key 1* Soft key 6*	Function depends on setting in application program
kF7	Function key Setup	
kF8	Function key	
s3	Function key CF	
x0	Perform internal calibration**	
x1	Print scale model	
x2	Print weighing cell serial number	
x3	Print weighing cell software version	
x4	Print display and control unit software version	
x5	Print user ID	
x6	Print weight ID	
x7	Print lot ID	

Format 3 (not allowed in the Setup menu)

!#	Meaning
z5	Input user ID
z6	Input weight ID
z7	Input lot ID

Format 4

!	Meaning
t	Text input in display

* numbered from right to left
** internal calibration weight necessary

Interface Description

Synchronization
During data communication between the scale and an on-line device (computer), messages consisting of ASCII characters are transmitted via the interface. For error-free data communication, the parameters for baud rate, parity, handshake mode and character format must be the same for both units.

You can set these parameters in the Setup menu so that they match those of the on-line device. You can also define parameters in the scale to make data output dependent on various conditions. The conditions that can be configured are described under each of the application program descriptions.

If you do not plug a peripheral device into the scale interface port, this will not generate an error message.

Handshake
The scale interface (Sartorius Scale Interface = SBI) has transmit and receive buffers. You can define the handshake parameter in the Setup menu:

- Hardware handshake (CTS/DTR)
- Software handshake (XON, XOFF)

Hardware Handshake
With a 4-wire interface, 1 more character can be transmitted after CTS (Clear to Send).

Software Handshake
The software handshake is controlled via XON and XOFF. When a device is switched on, XON must be transmitted to enable any connected device to communicate.

When the software handshake is configured in the Setup menu, the hardware handshake becomes active after the software handshake.

The data transmission sequence is as follows:

Scale	--- byte --->	Computer
(trans-	--- byte --->	(receiving
mitting	--- byte --->	
device)	--- byte --->	
	<--- XOFF ---	
	--- byte --->	
	--- byte --->	
	...	
	(Pause)	
	...	
	<--- XON ---	
	--- byte --->	
	--- byte --->	
	--- byte --->	
	--- byte --->	

Transmitting Device:
Once XOFF has been received, it prevents further transmission of characters. When XON is received, it re-enables the transmitting device to send data.

Receiving Device:
XOFF is transmitted after the 26th character has been stored. To prevent too many control commands from being received at one time, XON is not transmitted until the buffer is almost empty.

Activating Data Output
You can define the data output parameter so that output is activated either when a print command is received or automatically and synchronous with the scale display or at defined intervals (see application program descriptions and auto-print setting).

Data Output by Print Command
The print command can be transmitted by pressing (PRINT) or by a software command (Esc P).

Automatic Data Output
In the “auto print” operating mode, data are output to the interface port without a print command. You can choose to have data output automatically at defined print intervals with or without the stability parameter. Whichever parameter you select, the data will be output as the readouts appear on the scale display. The display update frequency depends on both the model of the scale and the current operating status.

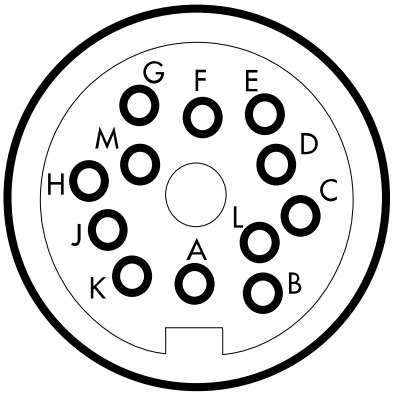
If you select the auto print setting, data will be transmitted immediately the moment you turn on the scale. In the Setup menu you can configure whether this automatic output can be stopped and started by pressing (PRINT).

Pin Assignment Chart

Female Interface Connector
12-contact, with screw-lock hardware for cable gland

Male Connector Required
Type C091D, 12-pin round male connector with screw-lock hardware, Amphenol (IP65); Sartorius order no.: 69QC0010.

Pin Assignment Chart

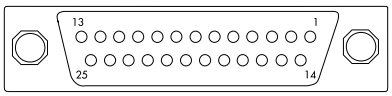


12-pin round connector	25-pin adapter	RS-232 signal (SBI and xBPI)	RS-485* signal (xBPI)
A	18	Ctrl. output “heavier”	Ctrl. output “heavier”
B	2	Data output (TxD)	RxD – TxD – N
C	3	Data input (RxD)	RxD – TxD – P
D	20	Data Terminal Ready (DTR)	
E	7, 8, 14	Ground, internal GND	Ground, internal GND
F	13, 25, 12	+5 V output	+5 V output
G	16	Ctrl. output “lighter”	Ctrl. output “lighter”
H	5	Clear to Send (CTS)	
J	17	Ctrl. output “equal”	Ctrl. output “equal”
K	15	Universal switch**	Universal switch**
L	19	Ctrl. output “set”	Ctrl. output “set”
M	11	+12 V output	+12 V output

Connect shield with low ohms to the housing

* Optional – only with a special data output – see “Accessories” section
** See the “Extra Functions” section for information on the universal remote switch functions

Cabling Diagram (adapter cable – round – DB25-scale)
Order No. YCC01-0016M3
Female interface connector:
25-contact, D-Submini DB25S
with screw lock hardware
Pin labeling of the 25-contact
D-SUB connector:



Connector – front view

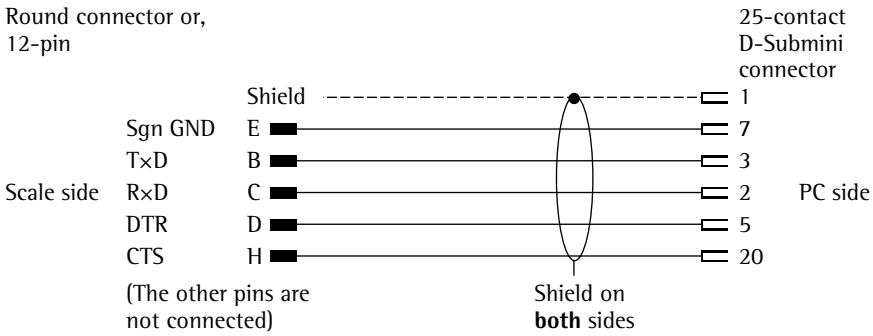
Male connector used:
(please use connectors with the same specifications):
25-pin D-Submini DB25S, with integrated shielded cable clamp assembly (Amp type 826 985-1C) and fastening screws (Amp type 164 868-1)

Pin Assignment:

Pin 1: Signal ground
Pin 2: Data output (TxD)
Pin 3: Data input (RxD)
Pin 4: Signal return (TxD/RxD)
Pin 5: Clear to send (CTS)
Pin 6: Internally connected
Pin 7: Internal ground
Pin 8: Internal ground
Pin 9: Reset _ In**)
Pin 10: Not connected
Pin 11: +12 V output
Pin 12: Reset _ Out**)
Pin 13: +5 V output
Pin 14: Internal ground
Pin 15:
Pin 16: <
Pin 17: =
Pin 18: >
Pin 19: SET
Pin 20: Data terminal ready (DTR)
Pin 21: Supply voltage ground “COM”
Pin 22: Not connected
Pin 23: Not connected
Pin 24: Supply voltage input +15...25 V
Pin 25: +5 V output

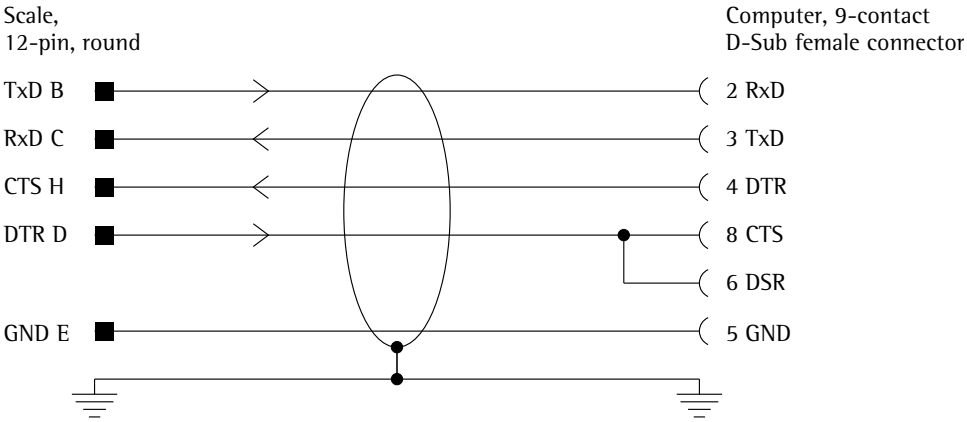
Cabling Diagram (Adapter Cable for PC)
(Adapter cable YCC01-03ISM5 – round – DB25-PC)
Diagram for interfacing a computer to the scale using the RS-232C/V24 standard and cables up to 15 m (50 ft) long

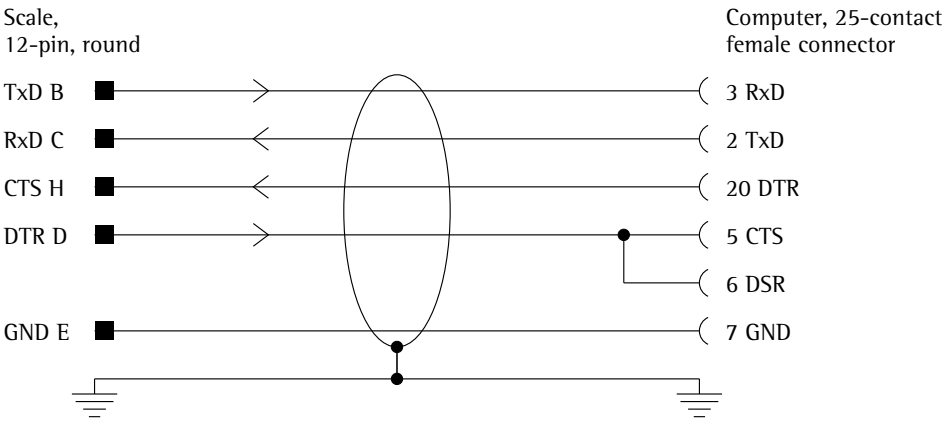
Cabling diagram:
Connection assignments for the cable from the scale to an RS-232 PC interface



Cabling Diagram
For connecting a computer or peripheral device to the scale using RS-232C/V24 for data transfer over distances of up to 15 m (approx. 50 ft).

Warning: connect only the pins indicated here; do not connect any other pins:





Cable type: AWG 24 specification

Error Codes and Messages

Error codes and messages are displayed in the main display or text line for 2 seconds.
The program then returns automatically to the previous status.

Display	Cause	Solution
No segments appear on the display	No AC power is available The AC adapter is not plugged in Automatic shutoff configured in Setup (code 8 7 1)	Check the AC power supply Plug in the AC adapter Press I/⏻ to switch on the scale or select “no automatic shutoff” in Setup
H	The load exceeds the scale capacity	Unload the scale capacity
L or Err 54	The weighing pan is not in place	Place the weighing pan on the scale
Err 01 > Display range	Data output not compatible with output format	Change the configuration in the Setup menu
Err 02 Cal. n. possible	Calibration/adjustment condition not met, e.g., – The scale was not tared – The scale is loaded	Calibrate only when zero is displayed Press Tare to tare Unload the scale
Err 03 Cal./adj. interrupt	Calibration/adjustment could not be completed within a certain time	Allow the scale to warm up again and repeat the adjustment process
Err 05	Built-in calibration weight does not return to its initial position following calibration	Contact your local Sartorius Service Center
Err 06 Int. wt. defective	Built-in calibration weight is defective	Contact your local Sartorius Service Center
Err 07 Function blocked	Function not allowed in scale verified for use in legal metrology	Contact your local Sartorius Service Center for information on having the settings changed
Err 08* <> zero range	The load on the scale is too heavy to zero the readout	Check whether the “power-on zero range” is set
Err 09* < 0 not allowed	Taring is not possible when the gross weight is ≤ zero	Zero the scale
Err 10 Tare fct. blocked	Tare key and 2nd tare memory are blocked when there is data in the tare memory for the formulation application Differential weighing: The tare key is blocked when a tare weight is stored for a specific sample	Press CF to clear the formulation application; the tare key and 2nd tare memory are then accessible Differential weighing: Unload the scale or change to a different sample
Err 11 Tare2 blocked	Tare memory not allowed – Cannot load the sample tare weight – Total weight in the tare memory exceeds the capacity of the scale – Tare value exceeds the fine range of the verified scale	Check the tare value entered
Err 12 Tare2 > Max.	Tare memory greater than weighing range or range limits	Check sample/container
Err 17 Adj.-wt. > Max.	Internal adjustment is not possible because preload is too heavy	Reduce the preload or change the configuration
Err 30 Print fct. blocked	Interface port for printer output is blocked	Contact your local Sartorius Service Center

* = occurs only via the SBI interface (ESC f3_/f4_)

Display/Problem	Cause	Solution
Err 31 Print fct. blocked	Interface handshake interrupted (XOFF, CTS)	Transmit XON, then CTS
Ref.wt. too light	Error in storing reference weight (with the counting or weighing-in-percent application)	Weight too light or there is no sample on the scale
Cannot update	Reference updating not possible (with the counting application)	See “Counting” in “Operation” for reference updating criteria
Not a number xxxxx Too low xxxxx Too high	Input wrong (with any application program), e.g., alphabetic input not allowed	Follow the instructions for the application programs
Too many char.	Input text too long	Allowable text lengths, incl. decimal point: – S ID, NUM, L ID, ID: max. 20 characters – W ID: max. 14 characters
Wrong line format	Configured printout, printout memory and 16-character format selected	Select the 22-character format
Limits unequal for unit	Unit entered for tolerance limits in check-weighing different from the appl. used	Adjust tolerance limits
Equation too long	Equation exceeds 28 characters in formulation	Limit equation to 28 characters
Err 10x x = 1: x = 2: x = 3: x = 4: “Checkerboard” pattern displayed continuously	Key is stuck Key pressed when switching on the scale: ↑ (F1, F2, F5, F6), CF Ø, ↑ (F3), 0, 3, 4, 9 2, 5, 6, ·, ⌫, Tare-right 1, 7, 8, ↑ (F4), ABC, Tare-left Setup key was pressed when turning on the scale, or is stuck	Release key or Contact your local Sartorius Service Center
Err 320	Operating program memory defective	Contact your local Sartorius Service Center
Err 340	Operating parameter (EEPROM) is wrong RAM lost data Factory settings deleted	Turn the scale off, then back on again. If this error remains displayed, please contact your local Sartorius Service Center
Err 341	Battery needs to be recharged	Leave the scale power on for at least 10 hours
No WP	Weighing platform is defective	Contact your local Sartorius Service Center
blocked	Function blocked	None
The special code ⓪ remains displayed	None of the keys has been pressed since the scale was turned on	Press a key
The weight readout changes constantly	Unstable ambient conditions Too much vibration, or the scale is exposed to a draft A foreign object is caught between the pan and the scale housing	Set up the scale in another area Change Setup configurations to adapt the scale to the ambient conditions Remove the foreign object
The weight readout is obviously wrong	The scale has not been calibrated/adjusted The scale was not tared before weighing The scale is not level The dust cover is caught under the weighing pan	Calibrate/adjust the scale Tare before weighing Level the scale See “Replacing the Dust Cover” in the chapter “Care and Maintenance”

If any other errors occur, please contact your local Sartorius Service Center.

Care and Maintenance

Service
Regular servicing by a Sartorius technician will extend the service life of your scale and ensure its continued weighing accuracy. Sartorius can offer you service contracts, with your choice of regular maintenance intervals ranging from 1 month to 2 years. The optimum maintenance interval depends on the operating conditions at the place of installation and on the individual tolerance requirements.

Repairs
Repair work must be performed by trained service technicians. Any attempt by untrained persons to perform repairs may lead to hazards for the user.

Cleaning
- Unplug the AC adapter from the wall outlet (mains supply). If you have an interface cable connected to the scale port, unplug it from the port.
- Clean the scale using a piece of cloth which has been wet with a mild detergent (soap).
- After cleaning, wipe down the scale with a soft, dry cloth

⚠ Make sure that no dust or liquid enters the scale housing.

⚠ Do not use any aggressive cleaning agents (solvents or similar agents)

Cleaning Stainless Steel Surfaces
Clean all stainless steel parts regularly. Remove the stainless steel weighing pan and thoroughly clean it separately. Use a damp cloth or sponge to clean any stainless steel parts on the scale. You can use any commercially available household cleaning agent that is suitable for use on stainless steel. Clean stainless steel surfaces by wiping them down. Then rinse the equipment thoroughly, making sure to remove all residues. Afterwards, allow the scale to dry.
If desired, you can apply oil to the cleaned surfaces as additional protection.

Solvents are permitted for use only on stainless steel parts.

Replacing the Dust Cover
> Instructions for replacing a damaged dust cover

FC06BBE-S
Remove the following parts from the scale:

- Draft shield cover
- Glass draft shield cylinder
- Weighing pan
- Pan support
- Shield disk: turn clockwise and lift off
- Old dust cover

- Place the new dust cover on the scale and press down on the front and back along the edges until it is seated firmly
- Place the shield disk on the scale and turn it counterclockwise
- Follow the above instructions in reverse order when placing the remaining parts back on the scale.

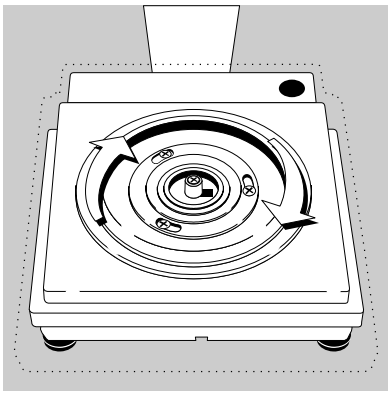
FC6CCE-H, FC2CCE-S, FC12CCE-S, FC6CCE-S
Remove the following parts from the scale:

- Weighing pan
- Pan draft shield (depending on scale model)
- Old dust cover

Place the new dust cover over the scale

Follow the above instructions in reverse order when placing the remaining parts back on the scale.

⚠ The dust cover must not touch the weighing pan



Safety Inspection
If there is any indication that safe operation of the scale is no longer warranted:
- Turn off the power and disconnect the equipment from AC power immediately

> Lock the equipment in a secure place to ensure that it cannot be used for the time being.

Notify your nearest Sartorius Service Center. Repair work must be performed by trained service technicians.

We recommend having the power supply inspected by a certified electrician at regular intervals, according to the checklist given below:

- Insulating resistance: > 7 megaohms measured with a constant voltage of at least 500 volts at a 500 K-ohm load
- Leakage current: < 0.05mA measured with a properly calibrated multimeter

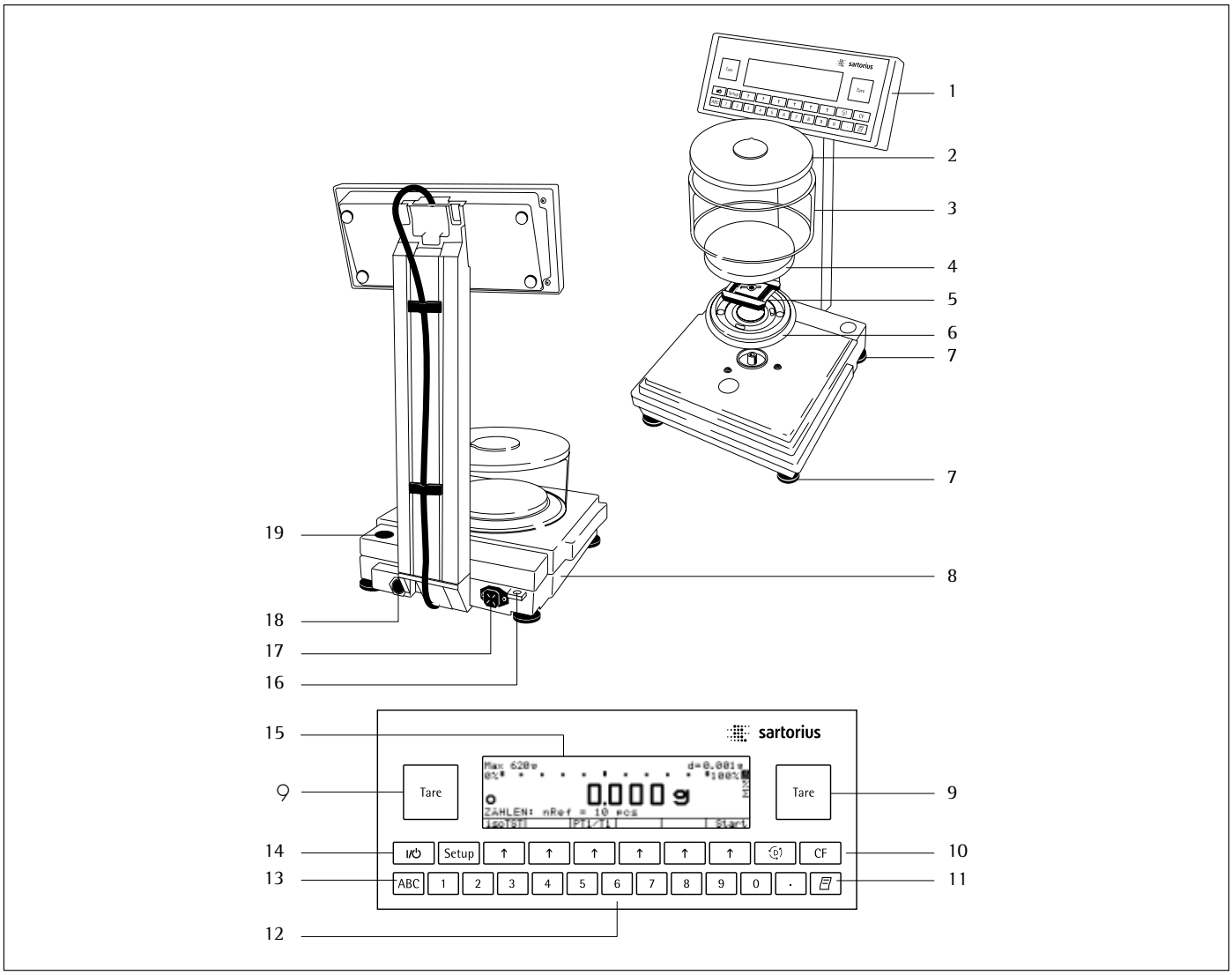
Instructions for Recycling

To ensure safe shipment, your scale has been packaged using environmentally friendly materials. After successful installation of the scale, you should return this packaging for recycling.
For information on recycling options, including recycling of old weighing equipment, contact your municipal waste disposal center or local recycling depot.

Overview

General Views of the Scales

FC06BBE-S(0CE)
The “0CE” suffix appended to the model number indicates a verified or verifiable scale model



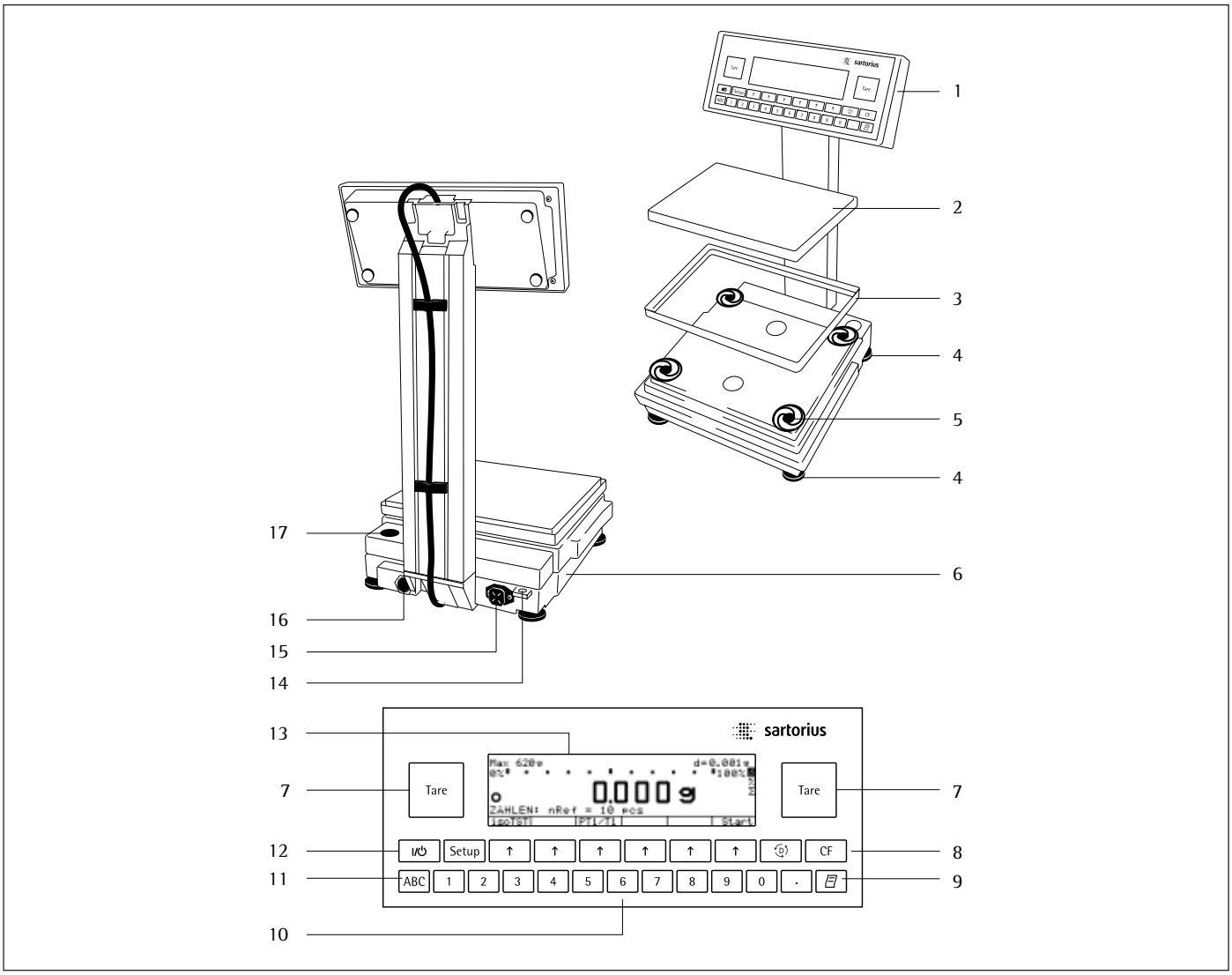
No.	Designation	Order no. for replacement
1	Display and control unit	
2	Draft shield cover	69 LP 0002
3	Glass draft shield cylinder	69 14290
4	Weighing pan	69 LP 0004
5	Pan support	69 LP 0005
6	Shield disk	69 LP 0003
7	Leveling foot	69 B20005
8	Metrological ID label (only on verified models)	
9	Tare key	
10	Function keys	
11	Print key	
12	Keys for numeric input	

No.	Designation	Order no. for replacement
13	Toggle key for alphabetic input	
14	On/off key	
15	Weight display	
16	Lug for attaching an antitheft locking device	
17	AC jack	
18	Interface port	
19	Level indicator	
	Not shown:	
	Dust cover for weighing platform	69 60FB01
	Dust cover for display and control unit	69 60LP03
	Protective caps and plugs (set)	69 B20009

Overview

General Views of the Scales

FC6CCE-H(0CE), FC2CCE-S(0CE), FC12CCE-S(0CE), FC6CCE-S(0CE)
The "0CE" suffix appended to the model number indicates a verified or verifiable scale model

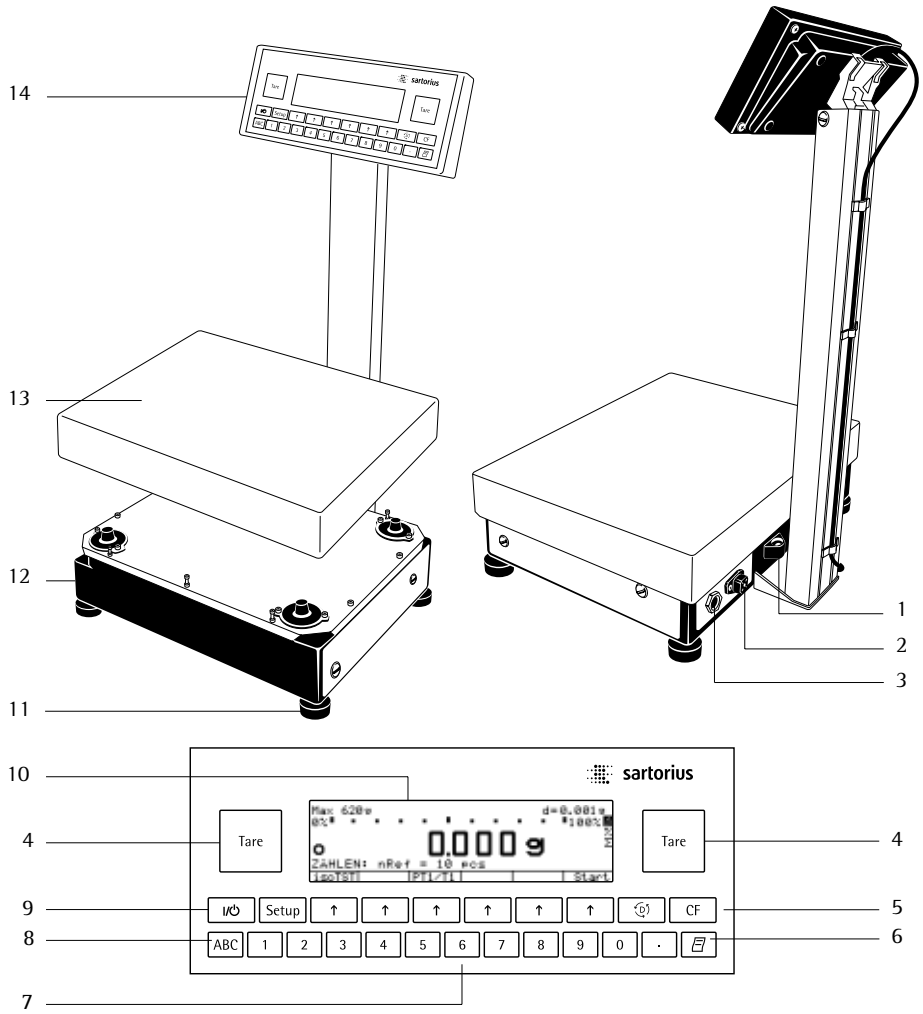


No.	Designation	Order no. for replacement
1	Display and control unit	
2	Load plate	69 LP0007
3	Glass draft shield cylinder (depending on model)	69 LP0008
4	Leveling foot	69 B20005
5	Shock absorber	69 LP0010
6	Metrological ID label (only on verified models)	
7	Tare key	
8	Function keys	
9	Print key	
10	Keys for numeric input	

No.	Designation	Order no. for replacement
11	Toggle key for alphabetic input	
12	On/off key	
13	Weight display	
14	Lug for attaching an antitheft locking device	
15	AC jack	
16	Interface port	
17	Level indicator	
	Not shown:	
	Dust cover for weighing platform	69 60FB02
	Dust cover for display and control unit	69 60LP03
	Protective caps and plugs (set)	69 B20009

General Views of the Scales

FCG34EDE-H, FCG34EDE-P, FCG16EDE-H, FCG12EDE-P, FCG64EDE-S, FCG64EDE-H



No.	Designation
1	Level indicator
2	AC jack
3	Interface port
4	Tare key
5	Function keys
6	Print key
7	Keys for numeric input
8	Toggle key for alphabetic input
9	On/off key

No.	Designation	Order no. for replacement
10	Weight display	
11	Leveling foot	69 LC0093
12	Metrological ID label (only on verified models)	
13	Load plate	
14	Display and control unit	
	Not shown:	
	Dust cover for display and control unit	69 60LP03

Specifications

Standard Models
General Specifications:

AC power source/power requirements	AC adapter, 230 or 115 V, +15% ... – 20%
Frequency	48 – 60 Hz
Allowable ambient operating temperature	0 ... +40 °C (273 ... 313 K, 32 °F ... 104 °F)
Operating temperature range	+ 10 ... + 30 °C
Dust and water protection rating according to EN 60529	IP54
Adaptation to ambient conditions	By selection of 1 of 4 optimized filter levels
Display update (depends on the filter level selected)	0.1 – 0.4
Power consumption	16 VA: maximum; 9 VA: average
Hours of operation with fully charged YRB 06 Z external battery pack, approx.	14 h
Selectable weight units	Grams, kilograms, carats, pounds, ounces, Troy ounces, Hong Kong taels, Singapore taels, Taiwanese taels, grains, pennyweights, milligrams, parts per pound, Chinese taels, Mommes, Austrian carats, Tola, Baht and Mesghal
Selectable application programs	Mass unit conversion, counting, weighing in percent, animal weighing, calculation, over/under checkweighing, time-controlled functions, totalizing, statistics, 2nd tare memory, identifiers
Built-in interface	RS-232C Format: 7-bit ASCII, 1 start bit, 1 or 2 stop bits Parity: odd, even or space Transmission rates: 150 to 19,200 baud Handshake: Software or hardware

Model-Specific Specifications:

Model		**FC06BBE-S, FC06BBE-S0UR***	**FC6CCE-H, FC6CCE-H0UR***	**FC2CCE-S, FC2CCE-S0UR***	**FC12CCE-S, FC12CCE-S0UR***	**FC6CCE-S, FC6CCE-S0UR***
Readability	g	0.001	0.01	0.01	0.1	0.1
Weighing capacity	g	620	6,200	2,200	12,000	6,200
Max. capacity	kg	3	25	10	50	50
Tare range (subtractive)	g	– 620	– 6,200	– 2,200	– 12,000	– 6,200
Electronically compensated preload (without restricting weighing range)	g	93	–	110	1,200	1,240
Max. preload when starting calibration/adjustment (isoTEST) (scale must be zeroed)	g	110	5,200	1,300	10,000	6,400
Repeatability (standard deviation)	≤±g	0.001	0.01	0.01	0.05	0.05
Linearity	≤±g	0.002	0.02	0.02	0.2	0.1
Sensitivity drift within +10 ... +30°C	≤±/K	2 · 10-6	2 · 10-6	2 · 10-6	4 · 10-6	4 · 10-6
Response time (average)	s	1.5	1.5	1.5	1	1
External calibration weight	g	500 (E2)	5,000 (E2)	2,000 (F1)	5,000 (F1)	5,000 (F2)
(of at least accuracy class...)						
Pan size	mm	∅ 130	218×200	218×200	218×200	218×200
Dimensions (W×D×H)	mm	240×294×86	240×294×86	240×294×86	240×294×86	240×294×86
Net weight, approx.	kg	7	8.4	7.3	7.3	7.3
Dust and water protection rating according to EN 60529[1)]	IP54					

* = U.S./Canadian keypad version
[1)] = Specially protected dust-tight and washdown-resistant AC adapter; see the section on “Accessories.”

Model		FCG64EDE-H, FCG64EDE-H0UR*	FCG34EDE-H, FCG34EDE-H0UR*	FCG16EDE-H, FCG16EDE-H0UR*
Readability	g	0.1	0.1	0.1
Weighing capacity	kg	64	34	16
Max. overload capacity	kg	130	130	130
Tare range (subtractive)	kg	– 64	– 34	– 16
Preload that can be electronically compensated for (without restricting the weighing capacity)	kg	13	4	4
Max. preload at the beginning of calibration/adjustment “isoTEST” (scale display does not have to be zeroed)	kg	ca. 45	ca. 21	ca. 19
Repeatability	≤±g	0.1	0.1	0.05
Linearity	≤±g	0.5	0.2	0.2
Sensitivity drift between +10 ... +30°C	≤±/K	3 · 10-6	2 · 10-6	2 · 10-6
Response time (average)	s	1.5	1.5	1.5
External standard calibration weight (at least of the accuracy class indicated)	kg	10 (F1)	10 (F1)	10 (F1)
Platform dimensions	mm	300×400		
Net weight, approx.	kg	16.0		
Dust and water protection rating of the scale housing acc. to EN 60529		IP44	IP65	IP65

Model		FCG34EDE-P, FCG34EDE-P0UR*	FCG12EDE-P, FCG12EDE-P0UR*	FCG64EDE-S, FCG64EDE-S0UR*
Readability	g	0.1/0.2/0.5	0.1/0.2	1
Weighing capacity	kg	8/16/34	6/12	64
Max. overload capacity	kg	130	130	130
Tare range (subtractive)	kg	– 34	– 12	– 64
Preload that can be electronically compensated for (without restricting the weighing capacity)	kg	4	4	13
Max. preload at the beginning of calibration/adjustment ”isoTEST” (scale display does not have to be zeroed)	kg	ca. 21	ca. 10	ca. 45
Repeatability	≤±g	0.05/0.05/0.1	0.05/0.05	0.3
Linearity	≤±g	0.2	0.2	1
Sensitivity drift between +10 ... +30°C	≤±/K	2 · 10-6	2 · 10-6	3 · 10-6
Response time (average)	s	1.5	1.5	1.5
External standard calibration weight (at least of the accuracy class indicated)	kg	10 (F2)	10 (F1)	10 (F2)
Platform dimensions	mm	300×400		
Net weight, approx.	kg	16.0		
Dust and water protection rating of the scale housing acc. to EN 60529[1)]		IP65		

* = U.S./Canadian keypad version

[1)] = Specially protected dust-tight and washdown-resistant AC adapter; see the section on “Accessories.”

Specifications

Verified Models with EC Type Approval

General Specifications

AC power source/power requirements	AC adapter, 230 or 115 V, +15% ... –20%	
Frequency	48 – 60 Hz	
Operating temperature range	+10 ... +30 °C (+50 ... +86 °F)	
Adaptation to ambient conditions	By selection of 1 of 4 optimized filter levels	
Display update (depends on the filter level selected)	0.1 – 0.4	
Power consumption	16 VA: maximum; 9 VA: average	
Hours of operation with fully charged YRB 06 Z external battery pack, approx.	14 h	
Selectable application programs	Mass unit conversion, counting, weighing in percent, animal weighing, calculation, over/under checkweighing, time-controlled functions, totalizing, statistics, 2nd tare memory, identifiers	
Built-in interface	RS-232C	
	Format:	7-bit ASCII, 1 start bit, 1 or 2 stop bits
	Parity:	odd, even or space
	Transmission rates:	150 to 19,200 baud
	Handshake:	Software or hardware

Model-Specific Specifications

Model		**FC06BBE-S0CE**	**FC6CCE-H0CE**	**FC2CCE-S0CE**	**FC12CCE-S0CE**	**FC6CCE-S0CE**
Type		isoTEST in conjunction with BD BF				
Accuracy class *		(II)	(II)	(II)	(II)	(II)
Scale interval d*	g	0.001	0.01	0.01	0.1	0.1
Max. weighing capacity*	g	620	6,200	2,200	12,000	6,200
Verification scale interval e*	g	0.01	0.1	0.1	1	1
Min. capacity*	g	0.02	0.5	0.5	5	5
Max. capacity	kg	3	25	10	50	50
Tare range (subtractive)		≤ 100% of the max. weighing capacity				
Electronically compensated preload (without restricting weighing range)	g	93	–	110	1,200	1,240
Max. preload when starting calibration/adjustment (scale must be zeroed)	g	110	5,200	1,300	8,200	2,440
Application range according to CD*	g	0.02 – 620	0.5 – 6,200	0.5 – 2,200	5 – 12,000	5 – 6,200
Response time (average)	s	1.5	1.5	1.5	1	1
Selectable weight units		Grams, kilograms				
Pan size	mm	∅ 130	218 × 200	218 × 200	218 × 200	218 × 200
Dimensions (W × D × H)	mm	240 × 294 × 86	240 × 294 × 86	240 × 294 × 86	240 × 294 × 86	240 × 294 × 86
Net weight. approx.	kg	7	8.4	7.3	7.3	7.3
Dust and water protection rating according to EN 60529[1)]		IP54				

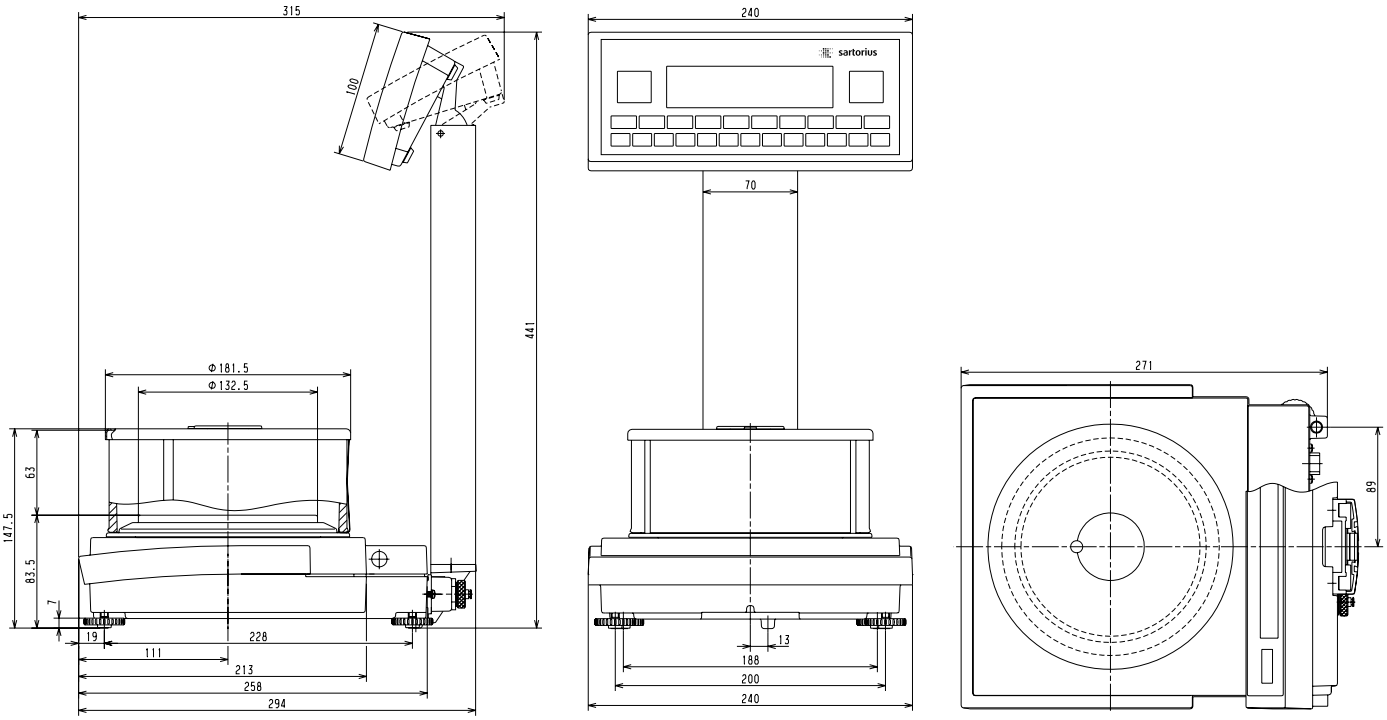
[1)] = Specially protected dust-tight and washdown-resistant AC adapter; see the section on “Accessories.”
* = CD = Council Directive 90/384/EEC for non-automatic weighing instruments used within the European Economic Area

Model		FCG34EDE-H0CE	FCG16EDE-H0CE	FCG34EDE-P0CE	FCG12EDE-P0CE	FCG64EDE-S0CE
Type		isoTEST in conjunction with BF BF				
Accuracy class *		(II)	(II)	(II)	(II)	(II)
Scale interval d*	g	0.1	0.1	0.1/0.2/0.5	0.1/0.2	1
Max. weighing capacity*	kg	34	16	8/16/34	6/12	64
Verification scale interval e*	g	1	1	1	1	10
Min. capacity*	g	5	5	5	5	50
Tare range (subtractive)		≤ 100% of the max. weighing capacity				
Max. capacity	kg	130				
Electronically compensated preload (without restricting weighing range)	kg	4	4	4	4	13
Max. preload when starting calibration/adjustment (scale must be zeroed)	kg	ca. 21	ca. 19	ca. 21	ca. 10	ca. 45
Application range according to CD*	g	5 – 34,000	5 – 16,000	5 – 34,000	5 – 12,000	50 – 64,000
Response time (average)	s	1.5				
Selectable weight units		Grams and kilograms	Grams and kilograms	Grams and kilograms	Grams and kilograms	Kilograms
Pan size	mm	300 × 400				
Net weight, approx.	kg	16.0				
Dust and water protection rating according to EN 60529		IP65				

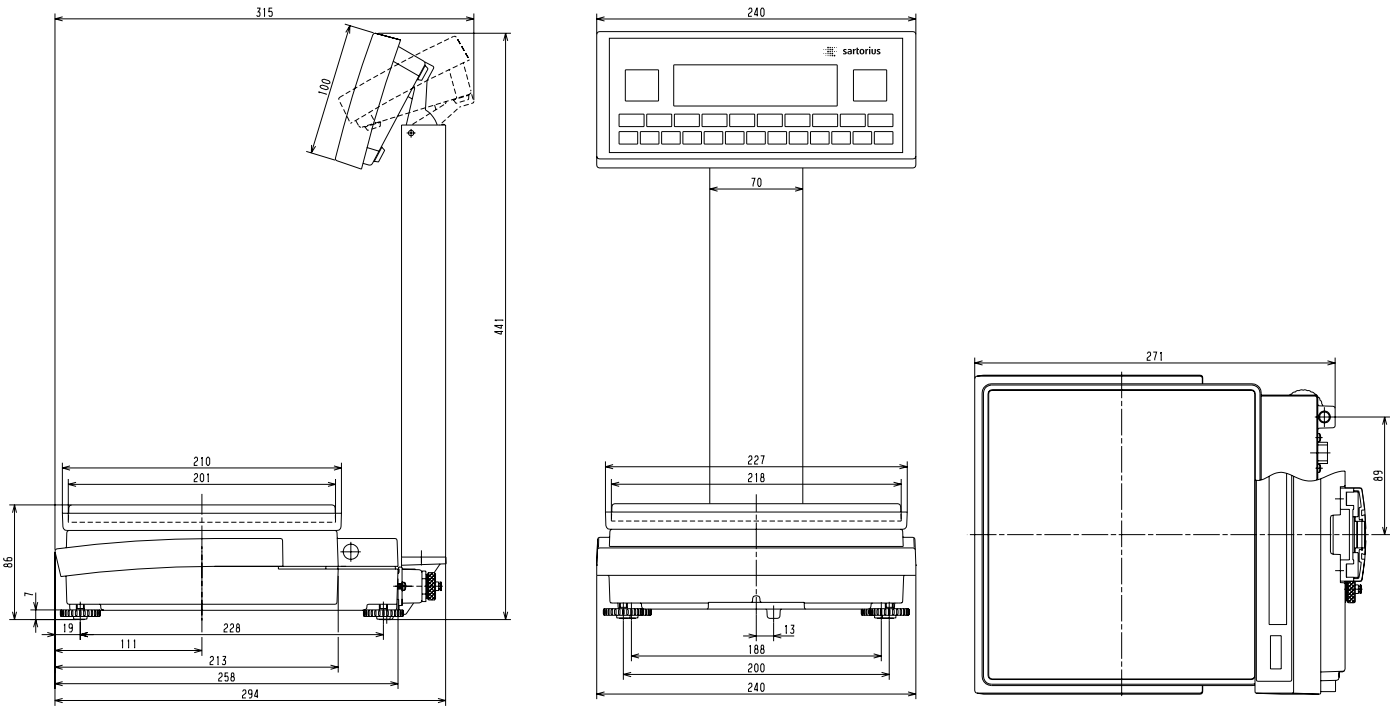
1) = Specially protected dust-tight and washdown-resistant AC adapter; see the section on “Accessories.”
* = CD = Council Directive 90/384/EEC for non-automatic weighing instruments used within the European Economic Area

Dimensions (Scale Drawings)

FC06BBE-S (OCE)

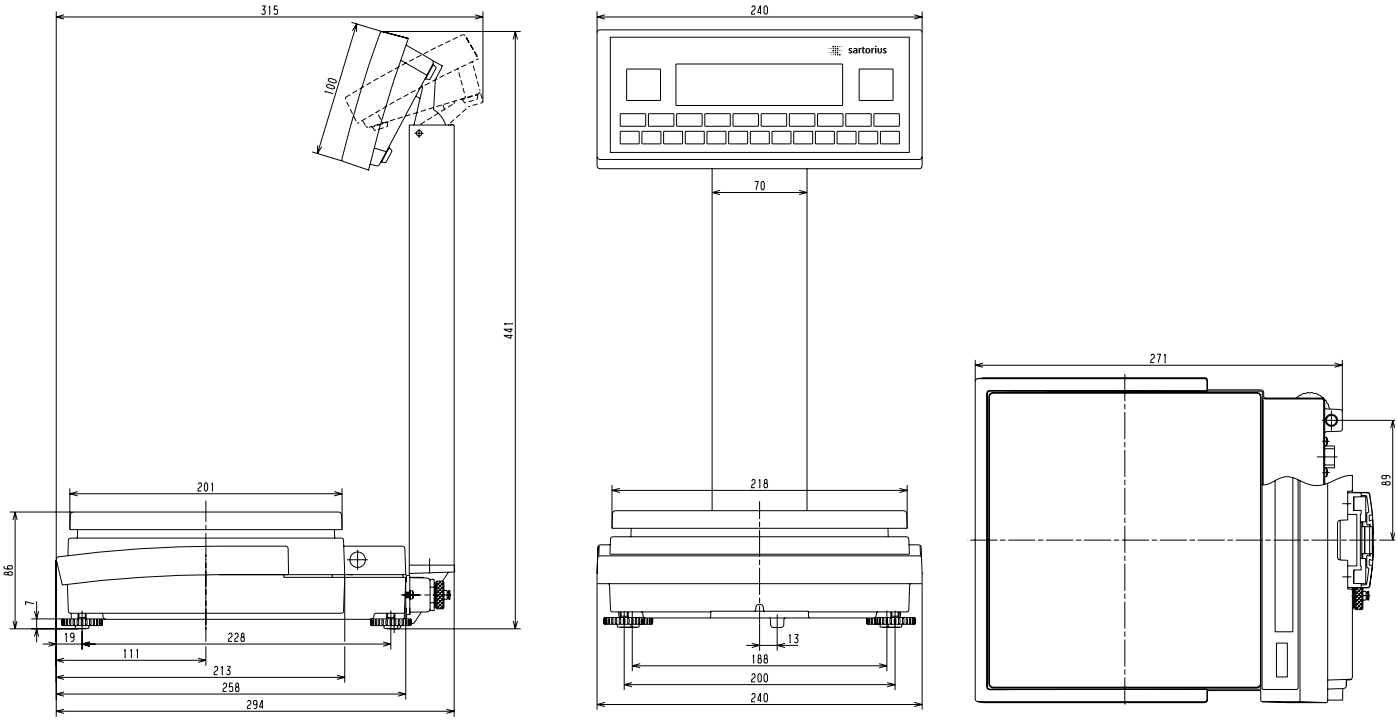


FC6CCE-H (OCE), FC2CCE-S (OCE)

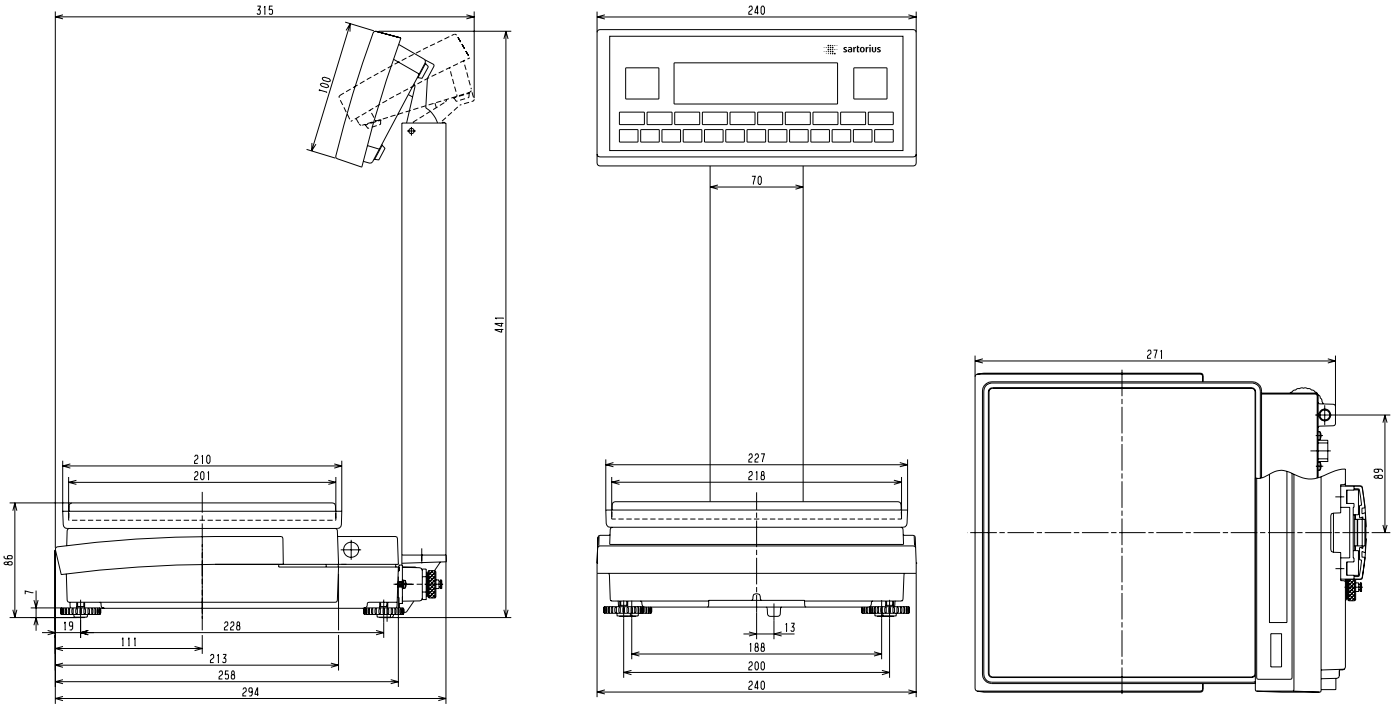


All dimensions are given in millimeters.

FC12CCE-S (0CE), FC6CCE-S (0CE)



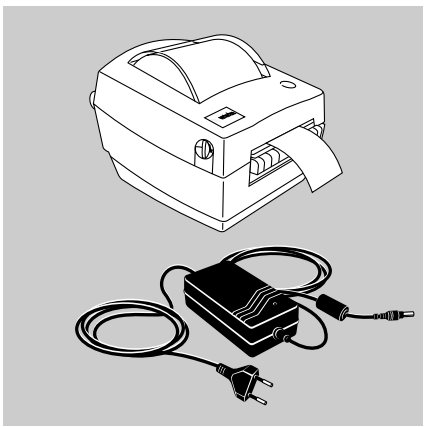
FCG64EDE-H, FCG34EDE-H, FCG16EDE-H, FCG34EDE-P, FCG12EDE-P, FCG64EDE-S (0CE)

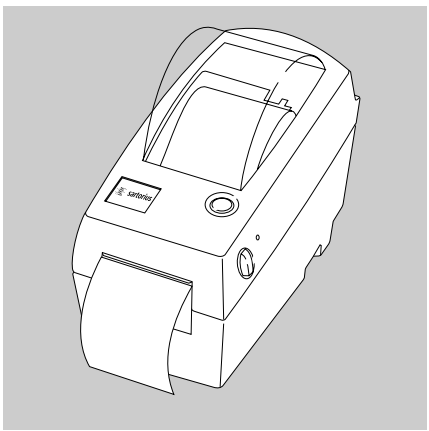


All dimensions are given in millimeters.

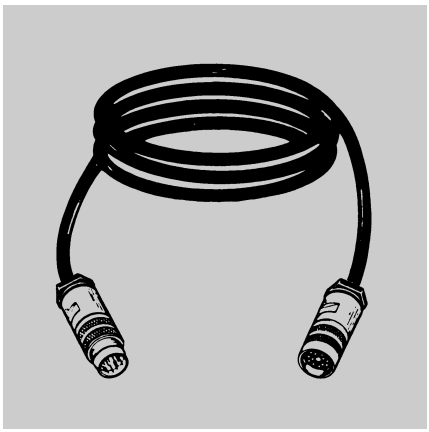
Accessories (Options)

Description	Order no.
Data Interfaces	
Data interface RS485 X-bus for	
– FCG-EDE scales	**YDO01FG**
– FC-BBE/CCE scales	**YDO02F**
Dual data interface RS-232 for models of the BBE and CCE range 12-pin round socket for a report printer and 5-pin DIN socket to interface a PC keyboard as a barcode scanner via keyboard interface - to be installed exclusively by Sartorius!	**YDO03F**
Dual data interface RS-232 for models of the FCG-EDE range 12-pin round socket for a report printer and 5-pin DIN socket to interface a PC keyboard as a barcode scanner via keyboard interface - to be installed exclusively by Sartorius!	**YDO04FG**
Dual data interface RS-485 for models of the BBE and CCE range 12-pin round socket for a report printer and 5-pin DIN socket to interface a PC keyboard as a barcode scanner via keyboard interface - to be installed exclusively by Sartorius!	**YDO05F**
Dual data interface RS-485 for models of the FCG-EDE range 12-pin round socket for a report printer and 5-pin DIN socket to interface a PC keyboard as a barcode scanner via keyboard interface - to be installed exclusively by Sartorius!	**YDO06FG**
Sartorius serial Profibus interface for RS-232	**YSPI3-232**
Sartorius serial Profibus interface for RS-485	**YSPI3-485**
Printer and printer accessories	
Verifiable label and strip printer with thermal print head, paper width 60 mm, with external power supply 100 – 240 V; Connecting cable 69Y03142 required	**YDP04IS-0CEUV**





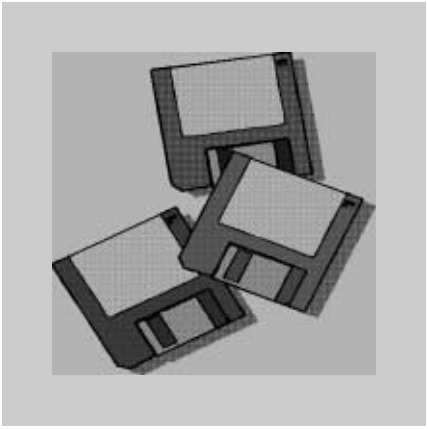
Verifiable label and strip printer with direct thermal printer (only for FC scales), paper width 108 mm, with external power supply 100 – 240 V and power cord (EU+US), only in connection with flexible printout configuration, connecting cable 69Y03142 required	**YDP12IS-0CEUV**
Verifiable label and strip printer with thermal transfer printer (only for FC scales), paper width 108 mm, with external power supply 100 – 240 V and power cord (EU+US), only in connection with flexible printout configuration, Connecting cable 69Y03142 required	**YDP12IS-0CEUVTH**
Strip printer (verifiable for use in legal metrology), with statistics, date and time functions, and LCD, (can be connected only with adapter cable YCC01-0019M3)	**YDP03-0CE**



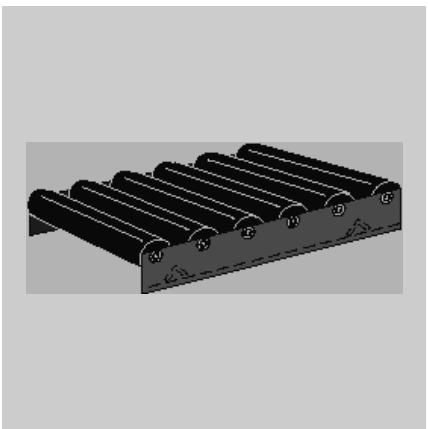
Description	Order no.
Cables and connectors	
Interface cable for connecting printer YDP03-0CE	**YCC01-0019M3**
Interface cable, 5 m; round connector scale to 25-pin D-Sub PC	**YCC01-03ISM5**
Interface cable, 5 m; round connector scale to 9-pin D-Sub PC	**YCC01-09ISM5**
Round male connector; 12-pin; for customizing own cables (IP65)	**69QC0010**
Connecting cable, 2.7 m, between platform and display & control unit (for FC-CCE/BBE and FCG scales)	**YCC01-19M3**
Connecting cable, 2.7 m, between platform and display & control unit (for FC-EDE scales)	**YCC01-18M3**
Adapter cable, 3 m; round connector to RS-232, 25-pin D-Submini port; for connecting the scale to Sartorius accessories	**YCC01-0016M3**
Extension cable IP65; 12-pin round male connector to 12-contact round female connector; length: 6 m	**YCC01-01ISM6**
Connecting cable YDP04/12IS-0CEUV and YDP12IS-0CEUVTH to FC scales; 9-pin. D-SUB-male/12-pin. round male connector	**69Y03142**
Interface cable (5m) with open cable ends	**YCCDI-03M5**
Cable for connecting an isi terminal to a FC scale, 12-contact connector to 12-contact connector, 3 m	**YCC01-04ISM3**
Connecting cable for scale with 25 pin D-SUB connector *2	**YCC01-02ISM3**

Electrical accessories	
Barcode scanner (only connectable to FC scales with corresponding dual data interface)	**YBR02FC**
T-connector for the connection of serial peripherals and control devices with a 12 pin round connector to industrial scales	**YTC02-CC1M1**
T-connector for connection of a printer and barcode scanner with a 12 pin round connector to industrial scales	**YTC02-PB1M1**
External display, with assembly kit for column mounting, red/green/red indicators, (with round 12-pin plug)	**YRD14Z**
Flow rate controller for pumps and feed units with analog or pulse interfaces (can be connected only using adapter cable YCC01-0016M3) - not in combination with verified scales	**YFC02Z-V2**
Reference scale for counting (cable YCC01-02ISM3 required)	**CP4202S**

Accessories (Options)



Description	Order no
Software	
SartoConnect software program (for transferring weighing data to a PC that runs under Windows® 95/98/NT and for further editing in application programs), incl. interface cable (1.5 m) for connecting the scale to a PC (12/9-pin)	**YSC01I**
SartoConnect with 5-m cable	**YSC01I5**
SartoConnect with 15-m cable	**YSC01I15**
Customized software applications (e.g. Excel, Access...) for SartoConnect Density Determination, Statistics...	
Software package applications in Excel for SartoConnect for the applications: Statistics, Sieve Analysis and Differential Weighing	**VF2483**
WinScale Scale Driver Software for Windows® 95/98/2000/NT with real-time weight display and verifiable PC data memory (RS232 connecting cable YCC01-09ISM5 necessary; RS-485 connecting cable on request)	**YSW03**
Configuration software (PC) for backing up and restoring of settings	**YAD01IS**
Customized printout configuration possible (e.g. barcode, variable font sizes, add graphics...) – Please ask your sales consultant! (only for FC scales)	**On request**



Mechanical accessories	
Display holder for mounting FC display unit in front of the scale or for wall mounting (smooth)	**YDH01F**
Hanger for under-scale weighing, M6 for EDE models	**69EA0040**
Wrap-around stainless steel load plate (water protection) for FC-CCE models	**YLP01**
Roller conveyor (stainless steel), for FCG models	**YRC01EDS**
Roller conveyor (aluminum), for FCG models	**YRC01EDA**
Power Supply	
External rechargeable battery pack; approx. 28 hours of operation	**YRB06Z**
Others	
Dust cover (replacement) for weighing platform	**6960FB02**
Dust cover for the display	**6960LP03**

Declarations of Conformity

The CE Mark on Sartorius Equipment
In 1985, the Council of the European Community approved a resolution concerning a new approach to the technical harmonization and standardization of national regulations. The organization for monitoring compliance with the directives and standards concerning the CE marking is governed in the individual EU Member States through the implementation of the EC Directives adopted by the respective national laws. As of December 1993, the scope of validity for all EC Directives has been extended to the Member States of the European Union and the Signatories of the Agreement on the European Economic Area.

Sartorius complies with the EC Directives and European Standards in order to supply its customers with weighing instruments that feature the latest advanced technology and provide many years of trouble-free service.

The CE mark may be affixed only to weighing instruments and associated equipment that comply with the applicable Directive(s):

Council Directive 89/336/EEC
"Electromagnetic compatibility (EMC)"

1. Electromagnetic compatibility:

1.1 Reference to 89/336/EEC:
Official Journal of the European Communities, Nr. 2001/C105/03

EN 61326-1
Electrical equipment for measurement control and laboratory use EMC requirements

Parts 1: General requirements
Defined immunity to interference:
Industrial areas, continuous, un-monitored operation

Limitation of emmissions:
Residential areas Class B

Important Note:
The operator shall be responsible for any modifications to Sartorius equipment and for any connections of cables or equipment not supplied by Sartorius and must check and, if necessary, correct these modifications and connections. On request, Sartorius will provide information on the minimum operating specifications (in accordance with the Standards listed above for defined immunity to interference).

Council Directive 73/23/EEC
"Electrical Equipment Designed for Use within Certain Voltage Limits"
Applicable European Standards:

EN 60950
Safety of information technology equipment including electrical business equipment

EN 61010
Safety requirements for electrical equipment for measurement, control and laboratory use
Part 1: General requirements

If you use electrical equipment in installations and under ambient conditions requiring higher safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.

Weighing Instruments for Use in Legal Metrology: Directive 90/384/EEC
"Non-automatic weighing instruments"
This Directive regulates the determination of mass in legal metrology.

For the respective Declaration of Conformity for weighing instruments that have been verified by Sartorius for use as legal measuring instruments and that have an EC Type-Approval Certificate, see the page after next.

This Directive also regulates the performance of the EC verification by the manufacturer, provided that an EC Type-Approval Certificate has been issued and the manufacturer has been accredited by an officer or a Notified Body registered at the Commission of the European Community for performing such verification.

The legal basis allowing Sartorius to perform EC verification is constituted by the EC Council Directive No. 90/384/ EEC on non-automatic weighing instruments that has been in effect since January 1, 1993, in the Internal Market as well as by the Certificate of Accreditation of the Sartorius AG Quality Management System issued by the Metrology Department of the Regional Administration Office of Lower Saxony, Germany ("Niedersächsisches Landesverwaltungsamt -Eichwesen") on February 15, 1993.

For information on the CE mark on Sartorius equipment and legal regulations currently applicable in your country, and to obtain the names of the persons to contact, please ask your local Sartorius office, dealer or service center.

"New Installation" Service
Initial verification is covered in our "New Installation" service package. In addition to initial verification, this package provides you with a series of important services which will guarantee that you achieve optimal results with your weighing instrument:

- Installation
- Startup
- Inspection
- Training
- Initial verification

If you would like Sartorius to perform initial verification of your weighing instrument, contact an authorized service representative.

"EC Verification" –
A Service Offered by Sartorius
Our service technicians are authorized to perform verification* of your weighing instruments that are acceptable for legal metrological verification and can inspect and verify the metrological specifications at the place of installation within the Member States of the European Union and the Signatories of the Agreement on the European Economic Area.

Subsequent Verifications within the European Countries
The expiration date of the verification depends on the national regulations of the country in which the weighing instrument is used. For information on verification and legal regulations currently applicable in your country, and to obtain the names of the persons to contact, please contact your local Sartorius office, dealer or service center.

* in accordance with the accreditation certificate issued to Sartorius AG

CE Declaration of Type Conformity to Directive No. 90/384/EEC

This declaration is valid for non-automatic electromechanical weighing instruments for use in legal metrology. These weighing instruments accepted for legal metrological verification have an EC Type-Approval Certificate. The model(s) concerned is(are) listed below along with the respective type, accuracy class, and number of the EC Type-Approval Certificate:

Model	Type	Accuracy Class	EC Type Approval No.	In Conjunction with Test Certificate	
				Type	Certificate No.
FB/FC.....-.0CE	iso-TEST	(II)	D97-09-018	BD BF	D09-96.30
FB/FC.....-.0CE	iso-TEST	(II)	D97-09-018	BB BD	D09-95.08
FBG/FCG.....-.0CE	iso-TEST	(II)	D97-09-018	BF BF	D09-96.30
FC.....-X.CE	iso-TEST	(II)	D97-09-018	MA BF	D09-96.30
FC.....-.XCE	iso-TEST	(II)	D97-09-018	BA BF	D09-96.30
FC.....-.XCE	iso-TEST	(II)	D97-09-018	BF BF	D09-96.30
FB/FC.....-.XCE	iso-TEST	(II)	D97-09-018	BD BF	D09-96.30
FCA/FCB.....-.XCE	iso-TEST	(II)	D97-09-018	BF BF	D09-96.30
FCA...-HXCE	iso-TEST	(II)	D97-09-018	HC BF	D09-96.30

SARTORIUS AG declares that its weighing instrument types comply with the requirements of the Council Directive on non-automatic weighing instruments, no. 90/384/EEC of 20 June 1990; the associated European Standard "Metrological aspects of non-automatic weighing instruments," No. EN 45501; the amended, currently valid versions of the national laws and decrees concerning legal metrology and verification in the Member States of the European Union, the EU, and the Signatories of the Agreement on the European Economic Area, which have adopted this Council Directive into their national laws; and with the requirements stipulated on the Type-Approval Certificate for verification. This Declaration of Type Conformity is valid only if the ID label on the weighing instrument has the CE mark of conformity and the green metrology sticker with the stamped letter "M" (the two-digit number in large print stands for the year in which the mark has been affixed):

If these marks are not on the ID label, this Declaration of Type Conformity is not valid. Validity can be obtained, for example, by submitting the weighing instrument for final action to be taken by an authorized representative of SARTORIUS AG. The period of validity of this Declaration of Type Conformity shall expire upon any tampering with, repair or modification of this weighing instrument or, in some Member States, on the date of expiration.
The operator of this weighing instrument shall be responsible for obtaining an authorized renewal of the verification, such as subsequent or periodic verification, of the weighing instrument for use as a legal measuring instrument.

Sartorius AG
37070 Goettingen, Germany
Signed in Göttingen, 19.11.2002

Dr. G. Maaz
(Head of Technical Operations)

J. Rehwald
(Head of Quality Management & Services)

OAW–113-2/02.96
P106ec02.doc

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

PTB

EG-Bauartzulassung

EC type-approval certificate

Zulassungsinhaber: *Issued to:*	Sartorius AG Weender Landstraße 94-108 37075 Göttingen Bundesrepublik Deutschland
Rechtsbezug: *In accordance with:*	§ 13 des Gesetzes über das Meß- und Eichwesen *(verification act)* vom/*dated* 23. März 1992 (BGBl. I S. 711) in Verbindung mit Richtlinie *(in connection with council directive)* 90/384/EWG, geändert durch *(amended by)* 93/68/EWG
Bauart: *In respect of:*	Nichtselbsttätige elektromechanische Waage *Nonautomatic electromechanical weighing instrument* Typ/*type*: iso-TEST Genauigkeitsklasse/*class* (I), (II), (III), (IIII) Max 0,05 kg ... 300 t Option: Mehrteilungswaage, Mehrbereichswaage *Multi-interval instrument, multiple range instrument*
Zulassungsnummer: *Approval number:*	**D97-09-018 4. Revision**
Gültig bis: *Valid until:*	2007-06-26
Anzahl der Seiten: *Number of pages:*	13
Geschäftszeichen: *Reference No.:*	1.14 – 02000518
Benannte Stelle: *Notified Body:*	0102

Im Auftrag
By order

Link

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 40

Braunschweig, 2002-03-26

Siegel
Seal

394 06 b-rb

Die Hauptmerkmale, Zulassungsbedingungen und Auflagen sind in der Anlage enthalten, die Bestandteil der EG-Bauartzulassung ist. Hinweise und eine Rechtsbehelfsbelehrung befinden sich auf der ersten Seite der Anlage

The principal characteristics, approval conditions and special conditions, if any, are set out in the Annex which forms an integral part of the EC type-approval certificate. For notes and information on legal remedies, see first page of the Annex.

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

PTB

Prüfschein

Test certificate

Ausgestellt für: *Issued to:*	Sartorius AG Weender Landstraße 94 – 108 37075 Göttingen Bundesrepublik Deutschland
Prüfgrundlage: *In accordance with:*	EN 45501 (1992), Nr.8.1, OIML R 76-1 (1992)
Gegenstand: *Object:*	Lastaufnehmer mit Wägezelle und Auswerteelektronik mit digitalem Ausgang als Modul einer elektromechanischen Waage zum Anschluß an geeignete Anzeige- und Bedienterminals *Load receptor with load cell and electronic device with digital output as module of an electromechanical weighing instrument for connection to suitable display- and operator-terminals* Typ / *type* **BA BF, BC BF, BD BF, BF BF, HC BF, MA BF und MD BF**
Kennummer: *Serial number:*	---
Prüfscheinnummer: *Test certificate number:*	D09-96.30 7. Revision / *Revision 7*
Datum der Prüfung: *Date of Test:*	
Anzahl der Seiten: *Number of pages:*	12
Geschäftszeichen: *Reference No.:*	1.14 – 02001430
Benannte Stelle: *Notified Body:*	0102

Im Auftrag
By order

Link

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 40

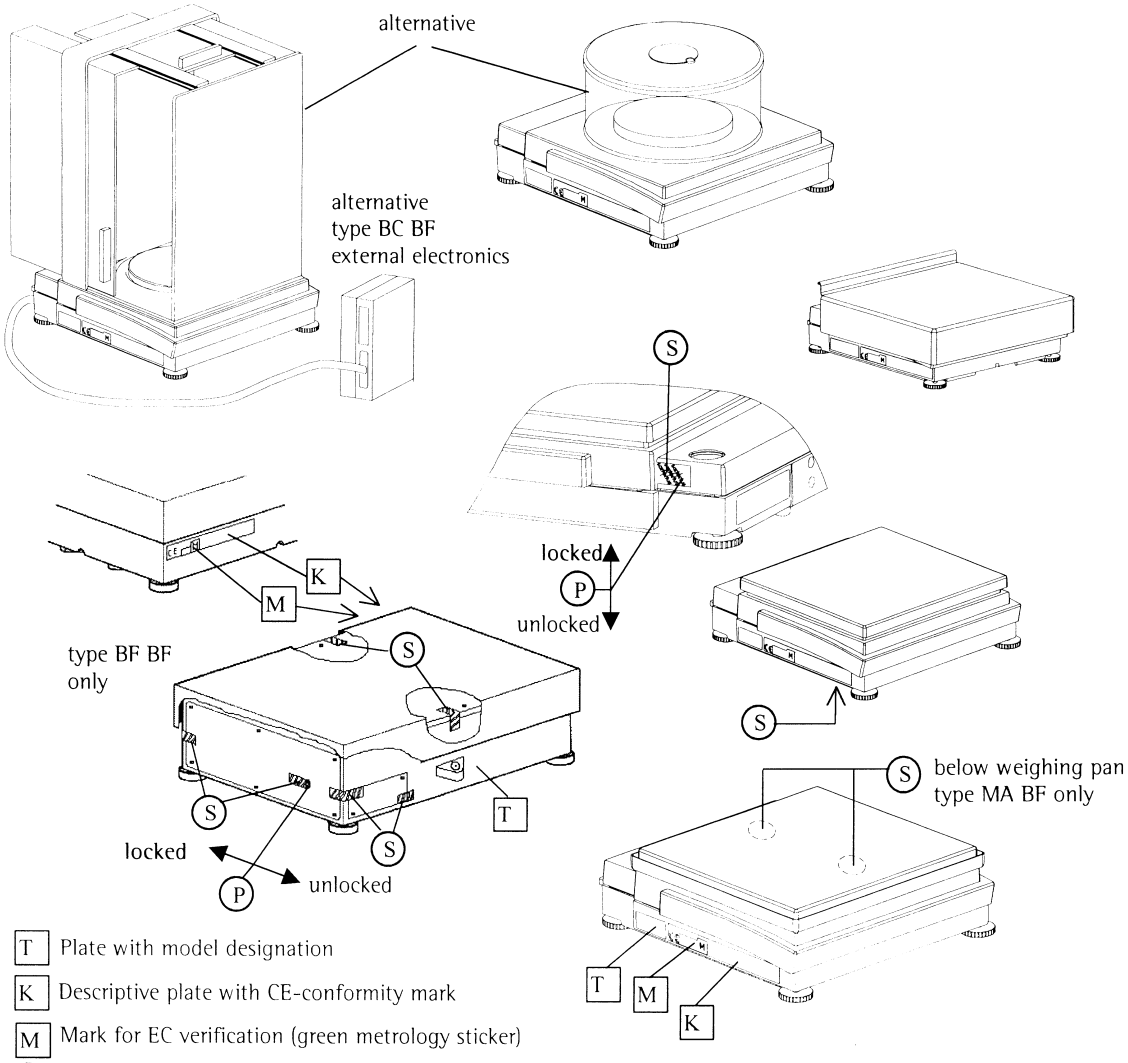
Braunschweig, 2002-11-13

Siegel
Seal

392 00 e-rb

Hinweise siehe erste Seite der Anlage, die Bestandteil des Prüfscheines ist.
For notes, see first page of the Annex which forms an integral part of the test certificate.

Plates and Markings



T Plate with model designation

K Descriptive plate with CE-conformity mark

M Mark for EC verification (green metrology sticker)

S Protective seal, not for accuracy class (I)

P Menu access switch

Indicating and operator terminals isi..., YAC01LA..., YAC01LP..., YAC01FC..., YAC02FC..., front-mounted, raised (post-mounted) or positioned separately.
Alternative to terminal: PC with Sartorius Win Scale YSW03 software

Example of descriptive plate of the already verified weighing instrument K

SARTORIUS AG GÖTTINGEN Germany iso-TEST 12345678 D97-09-018
CE 0111 M (II) +10°C / +30°C
Max 8200 g d= 0,01 g
Min 0,5 g e= 0,1 g

Example of plate with model designation T

Weighing module

BD BF
FC6CCE-H0CE D09-96.30
12345678

Indicating and operator terminal

SARTORIUS AG GÖTTINGEN Germany
YAC01LA -000FC
12345678

PPBF151001e

Type: BA BF, BC BF, BD BF, BF BF, MA BF, MD BF
EC Type-approval D97-09-018 + EC Test certificate D09-96.30

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Appendix: Entering the General Password

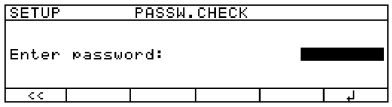
Enter/Change Password

● Select the Setup menu: Press SETUP

> SETUP SELECTION
is displayed

● Select the user input function:
Press the Input soft key

> The password prompt
is displayed:



○ Enter the General Password
(see below)

○ Confirm password:
Press the ↵ soft key

> User data is displayed

● Select the password setting function:
Press the v soft key repeatedly until

> Enter password:
is displayed, together with the current password setting

● Define a new password:
Enter letters/numbers for the new password (8 characters max.)
To delete the current password:
press · and confirm

● To confirm the new password: press the ↵ soft key

● Exit the Setup menu:
Press the << soft key

> Restart your application

General Password:
40414243

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